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SOF planning for uncertainty : creative thinking in dynamic environments

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SOF PLANNING FOR UNCERTAINTY: CREATIVE THINKING IN DYNAMIC ENVIRONMENTS

by

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December 1998

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This thesis builds a model for exploring this phenomenon. The purpose of the model is to provide the reader with a conceptual tool for understanding the problems and process of planning in uncertainty (the art and the science). Specifically it defines three essential tools for planning in uncertainty – *adaptive learning, shaping, and hedging.*

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SOF PLANNING FOR UNCERTAINTY: CREATIVE THINKING IN DYNAMIC ENVIRONMENTS

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ABSTRACT

The purpose of this thesis is to explore the question of why special operation missions succeed or fail. The author argues that success or failure is directly related to the problem of planning for uncertainty. Special operations are executed in an inherently dynamic environment. This environment creates uncertainty for both planners and operators. The most successful planners account for uncertainty in the planning process — before the operators ever conduct an operation.

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I. INTRODUCTION

> ...the business of special operations is a dangerous desperate one. Nations summon their best and brightest to perform missions that are so daring and spectacular that many are beyond the scope of imagination. Yet the daring and the spectacular comes with risk – and it comes with loss (Katz, 1998, p.10).

A. PURPOSE

There has always been a certain fascination surrounding the deeds and feats of special operation forces. The idea of a small band of bold and daring soldiers overcoming great odds to defeat a larger foe is very appealing both to the general public and to those in power that are capable of invoking their use to solve a nasty problem. Unfortunately as Samuel Katz notes above there are inherent risks associated with these types of operations. History tells us that the outcome of using special operation forces (SOF) has been mixed. There have been incredible successes, including the German raid on the Belgian fortress at Eben Emael, the Israeli raid on Entebbe, and the British raid on the Iranian embassy in London. There also have been some dramatic failures, including the British raid on Tobruk, the U.S. hostage rescue attempt in Iran, and the Israeli raid in Ansariya, Lebanon. This paper explores why strategic direct action special operations succeed or fail.

There are a number of current theories concerning why and how special operations succeed or fail. Lucien Vandenbrouke and William McRaven each advanced recent theories that discuss this phenomenon (McRaven, 1995; Vandenbrouke, 1993). Vandenbrouke addresses the question from a strategic frame of reference and McRaven from a tactical frame of reference. Though both advance distinctly different theories of special operations, they both emphasize planning as a key variable in the success or

failure of these missions. As McRaven points out, "A simple plan, carefully concealed, repeatedly and realistically rehearsed, and executed with surprise, speed and purpose" will minimize the potential failure of an operation (McRaven, 1995, p.11). He further states that "the key is to develop a plan that makes the enemy's defenses ineffective and guarantees an advantage before one reaches the point of vulnerability" (McRaven, 1995, p.84). Vandenbrouke notes in his analysis how difficult this often is for planners to achieve: "Planners have a personal stake in their plan. No matter how hard they try to stay objective, even first-rate planners are liable to overlook deficiencies in their product" (Vandenbrouke, 1993, p.161). The author agrees with both statements. Effective planning lays the foundation upon which successful special operations are conducted. Unfortunately it is often difficult to achieve a masterful plan. It is my premise that special operations tend to fail more frequently because of faulty or poor planning than they do because of faulty or poor execution. Later chapters of this thesis will argue that special operation can often succeed remarkably well despite numerous mistakes in the execution phase. Consider the following two case studies.

1. Eben Emael

On May 10, 1940 German commandos conducted a highly successful raid on the Belgian fortress at Eben Emael. The fort served as a critical link in a chain of Belgian forts along the border with Germany. The Belgians considered the fort to be impregnable. This assumption proved to be incorrect. In a pre-dawn insertion, "Assault Detachment Koch", consisting of 78 commandos in 41 gliders descended out of the darkness onto the fortress complex. The German commandos succeeded in capturing the fort and forcing the surrender of its occupants: over 700 Belgian soldiers (Mrazek, 1970;

Bekker, 1996). While the operation was clearly a stunning victory for the special operations world, the mission was not without it's glaring problems.

First, the Belgians suspected the Germans were planning such an attack on the fortress complex. Over the course of several months prior to the actual assault, Belgian defense forces practiced a series of drills and alerts to prepare for an assault on the fortress. Therefore, from the start, the Germans lacked strategic surprise. Second, in the darkness and confusion, the JU 52s (the tow planes for the gliders) released several of the gliders too soon. They did not land anywhere near their intended targets. One of these errant gliders carried the leader and his team who were responsible for commanding and controlling the assault on the fortress. They missed the initial assault on the fortress entirely. Third, the Germans lost tactical surprise when some of the gliders (still in tow) missed their intended release point. The Belgian defenses heard the drone of the JU 52s overhead and began firing at the raiding forces while they were still in the approach phase (Bekker, 1996). The Belgians at the fort also had time to alert their higher headquarters as well as a Belgian reaction force in the nearby town. Finally, the conventional forces that were supposed to relieve the commandos were delayed. The outnumbered (over 700 Belgian troops) and outgunned commandos spent nearly 28 hours on the objective before they were relieved by conventional troops (Mrazek, 1970). Thus despite the loss of strategic and tactical surprise, speed, and key leadership, the operation succeeded brilliantly. The German commandos accomplished all of their intended objectives. They destroyed or neutralized all of the fort's critical guns and secured the three bridges that allowed follow-on forces to cross. In the process only 6 out of 78 commandos were killed (Mrazek, 1970).

2. Tobruk

On September 13, 1942, British forces in North Africa conducted a raid on a key German installation at the port city of Tobruk. The goal was to seize the city of Tobruk for a brief period of time from the German and Italian defenders (Carell, 1996; Gordon, 1987; Owen, 1981). In a synchronized attack the raiders with support from conventional troops would systematically destroy the ports key facilities to include fuel supplies, communication nodes and radar equipment. In the end the raid was a disastrous failure.

The plan was as follows. Colonel Haselden and 90 members of the elite Long Range Desert Group would drive three trucks over 1500 miles to the objective and infiltrate the fortified city disguised as a convoy transporting British prisoners of war (POWs). The raiders would paint and configure the trucks to resemble typical German Afrika Corps vehicles. The German "guards" that would escort the British "POWs" were actually members of a Special Interrogation Unit (SIG). The members of SIG were German Jews that worked directly for the British in North Africa (Gordon, 1987).

Under the confusion and cover of a coordinated air-attack the raiders would seize a bridgehead south of the harbor where the Italians and Germans had set up a series of coastal artillery and air defense artillery sites to protect the port. Once the raiders had secured these key sites they would initiate a preplanned signal and guide an amphibious landing force of approximately 650 Marines to their beach landing sites inside the harbor. The Marines would launch patrol boats from British destroyers out at sea. Once the assault force and Marines had destroyed all the important installations at Tobruk, they would all depart the target area via amphibious launches and link back up with the British destroyers (Carell, 1996; Gordon, 1987).

A second assault force, under the command of Captain Lloyd Owen, was tasked with further isolating the objective. Their mission was to infiltrate the city during the air raid. Once inside the perimeter they would capture the radio and radar stations, seal off the entrance road to the port, and sever all outside communications links (Carell, 1996; Owen, 1981).

Initially the operation went extremely well. The raiders took the Germans and Italian defenders completely by surprise with their clever ruse. They successfully infiltrated the city as planned, and under the coordinated air attack began systematically seizing the coastal defense sites south of the harbor. Thanks to excellent intelligence work the raiders had highly detailed and accurate photos and maps of the key defense sites (Carell, 1996; Gordon, 1987).

Unfortunately the mission began to slowly fall apart after this point. First, the Italian and German defenders put up stiffer resistance then the raiders had originally anticipated. There is strong evidence to suggest that the Germans suspected that the Allies might mount an assault on Tobruk (Gordon, 1987). Unknown to the assault group and to British intelligence at the time was that Tobruk had a first-rate German infantry reaction force at their disposal for just such emergencies. The Germans launched an immediate counterattack against the raiders (Gordon, 1987). Several elements of the raiding force had considerable difficulty in capturing their assigned objectives against the determined and skilled German defenders. As a result the signal to launch the amphibious assault was delayed for over an hour.

Second, the raider elements that were supposed to guide the amphibious craft to the harbor lost their searchlights. Thus, instead of lighting the east and west sides of the

secured landing sites as planned, only the eastern side of the bay was lit up. The amphibious crafts became hopelessly confused as to when and where they were supposed to land. Only two of the 18 landing craft found the intended site. Many of the landing craft simply circled around in the harbor for hours.

Third, Captain Owen's supporting force never received the preplanned code word (to be sent by Colonel Haselden) to seize their targets (Carell, 1996; Owen, 1981). When the amphibious force did not land at their scheduled hour, Captain Owens aborted his mission and exfiltrated his team back to friendly lines. Thus the enemy radio and radar stations were never destroyed and the objective never was sufficiently isolated.

These crucial mistakes allowed the initially surprised Germans and Italian defenders critical time to reconsolidate their defenses. The Germans succeeded in recapturing the guns that defended the harbor and began focusing their attentions on the British naval threat that could be clearly observed from the shore batteries. As a result, the British destroyers came under deadly fire from the coastal batteries in the waning hours of the assault. The British naval forces had no choice but to depart the area in order to prevent an even bigger catastrophe from occurring. In the end the British lost both their destroyers and numerous small craft to Axis aircraft and coastal guns.

The hapless Long Range Desert Group on the ground was effectively cut off from all further conventional support. The overwhelmed, exhausted and outnumbered raiders were eventually killed or forced to surrender. The British suffered devastating losses. In all, three British warships were sunk, eight British and American bombers crews were shot down, and over 750 men were killed in action (Carell, 1996; Gordon, 1987; Owen, 1981).

3. Analysis

A cursory comparison of these two case studies illustrates the similarities of both operations. First, in both of the above case studies the raiders were well trained, highly motivated, and ably led. Second, both the German and British raiders had ample time to plan, prepare and execute the mission. Third, both had ample support from conventional forces. Fourth, in both cases the raiders lost strategic and tactical surprise and suffered from intelligence and command and control lapses (Gordon, 1987; Mrazek, 1970).

The two case studies also highlight some important differences. The Germans that conducted the operation on Eben Emael were average soldiers that were specially trained for their mission (McRaven, 1995). The British that conducted the raid on Tobruk were members of the elite Long Range Desert Group; they were already specially trained, organized and equipped to conduct acts of sabotage, raids and surveillance reconnaissance behind enemy lines (Carell, 1996; Gordon, 1987). The Germans succeeded despite the loss of strategic and tactical surprise, speed, and key leadership while the British failed despite virtually the same conditions. How can this be explained?

The author argues that the answer lies in the planning process. It is exceedingly more difficult for well-trained, highly motivated special operators to execute or overcome the difficulties of a poorly conceived plan than it is for average soldiers to execute a robust well-conceived plan. A "good" plan can offset major errors in the execution phase of an operation such as loss of surprise, speed or command and control. While I am not suggesting that effective planning is the only reason why these types of operations succeed, I do argue that it is one of the most critical factors that influence the outcome of

special operations and therefore deserves more focus and further study. Thus, effective planning is a necessary but not sufficient condition for success.

Although the need for thorough, detailed planning is obviously critical for the success of special operations, designing such a plan is often problematic. My premise is that special operations are executed in an inherently dynamic environment filled with stochastic events. This environment creates uncertainty for both the planners and operators. The most successful planners recognize this fact and take the necessary steps to account for and reduce the effects of uncertainty in the planning process before the operators ever hit the ground. This thesis builds a model for looking at this phenomenon. The purpose of the model is to provide the reader with a conceptual tool for understanding the problems and process of planning in uncertainty. Specifically it identifies what I consider are the essential tools for planning in dynamic uncertain environments.

B. PLANNING IN UNCERTAINTY

Special operation units typically operate in dynamic environments. They are frequently called upon to execute short notice missions across a broad spectrum of conflict, in both peace and wartime environments (Shelton, 1996; Schoomaker, 1998). Their strategic utility is in their size, skill and combat power. They are small forces with large, destructive capabilities. Thus their actions and capabilities are disproportionate to their actual size. They can inflict short, sharp, precise blows against a larger unsuspecting enemy force (Arquilla, 1997). SOF are a strategic asset because they expand the available options to national leaders particularly in situations that lie in the gray areas between diplomacy and overt warfare between states. As General Schoomaker notes, "SOF allow

decisionmakers the flexibility to tailor responses, lethal and nonlethal, to encompass this wide range of possibilities and reduce the risk of escalation associated with larger, more visible force deployments" (Schoomaker, 1998, p. 2).

While special operation forces have the advantage of low signature, superior training, leadership and motivation, their achilles heel is their "staying power". SOF are particularly susceptible to a dynamic operational environment because of their small size and available firepower. They do not have the ability to sustain themselves and survive on the ground for long periods of time against a strong conventional force. If plans go wrong, these elite units are extremely vulnerable to annihilation (Gray, 1996). As Colin Gray notes, " as a general rule, special operations forces cannot 'call in the cavalry' to effect a timely rescue if plans go awry in action. If special operations forces themselves are unable to tie an emergency knot in a plan that comes apart, they likely face capture or death (or both)" (Gray, 1996, p. 147). A perfect example of this point is illustrated by the following case example.

On 5 September 1997, Israeli special operators conducted a raid into southern Lebanon. The special operators were members of the navy's elite Flotilla 13. The raid was in retaliation for a series of terrorist bombings that had occurred in Jerusalem the week prior. Their intended mission was to land near the coastal town of Ansariya, Lebanon and ambush a meeting of senior officials from the "Islamic Resistance" movement. The purpose was to capture or kill these terrorist leaders (Katz, 1998).

As the special operators were making their way across the western side of a road that led toward their intended objective, they came under a deadly ambush themselves from guerrillas lying in wait. Two Claymore mines ripped through the ranks of the small

patrol killing or wounding many of the operators instantly. For the next hour the surviving operators came under withering small arms fire from guerrillas and Lebanese army regulars who had joined the firefight. It took a rescue force of 150 men, with close air support nearly two hours to extracted the dead and wounded off the objective. In the end, 12 out of the 16-man patrol were killed in action. Israeli officials now call the failed raid on Ansiraya the single worst one-day combat losses in over a decade (Katz, 1998).

As of this writing Israeli officials will not say if the operators simply stumbled into a roving ambush or whether the Islamic Resistance were tipped off to the Israeli operation through a breach of security. In either case post mortem investigations attributed the failure in part, to faulty planning. Critics of the failed raid charge that the planners had inadequate intelligence on the objective and did not accurately assess the abilities and skills of the Shiite guerrillas that the team might encounter (Katz, 1998, p.8). This uncertainty in turn was not taken into account in the operational plan.

This incident as well as the other two case studies highlights the inherent risk associated with such operations. Variables that may affect the operation are interconnected in varying and often unknown degrees. The slightest change or ripple in one variable can have a dramatic effect on other variables and the outcome of the intended operation. Thus small errors in timing, planning, or judgment that may be insignificant to larger, conventional forces can be deadly to SOF units. Retired Israeli General Chaim Herzog emphasizes this point of SOFs inherent vulnerability in his memoirs concerning the legendary Entebbe raid in 1976. "In an operation such as that at Entebbe, all elements are interdependent. The slightest error, the slightest lack of

1996, p. 343). The preceding problem has often been defined and described with very fatalistic and deterministic language — battlefield friction, the fog of war, Murphy's law, fate, or simply bad luck. It certainly seems to explain the puzzling fact of why mission fail despite having adequate speed, surprise, security, and intelligence. The author subscribes to a different and ultimately more optimistic point of view on this phenomenon. Mission failure is less a problem of uncontrollable fate or bad luck and more of a failure to recognize and account for uncertainty in the operational environment.

The author argues that the special operations environment is defined by uncertainty. The sheer dynamics of the environment creates uncertainty for the operators and planners. It is this uncertainty which increases risk for the operators on the ground. Therefore SOF missions are more likely to succeed when they are able to mitigate and reduce the level of uncertainty in the planning environment. (Where is the enemy? What are his intentions? What are his capabilities? What is his reaction time?). If this information is known or uncovered the special operator can devise a clever, robust plan that works to avoid the enemy's strengths and exploit his weaknesses, thus maximizing his chances for success. The problem is that in dynamic, unstable, environments reducing uncertainty to an acceptable level is very difficult. Information on the enemy or the objective is often unclear, conflicting, or simply not available. Let us deconstruct the concept of uncertainty in order to determine how it affects the military planning process.

C. UNCERTAINTY

> To act with confidence one must be willing to look ahead and consider uncertainties: Rather than asking such questions, too many people react to uncertainty with denial. They take an unconsciously deterministic view of events. They take for granted that some things just can't and won't happen. Not having tried to foresee surprising events, they are at a loss for ways to act when upheaval continues. They create blind spots for themselves (Schwartz, 1991, p.3).

The first step to understand how uncertainty effects the planning process is to define it. Uncertainty occurs when planners find it difficult to obtain accurate information due to a rapidly changing situation (Hodge et al., 1996). Thus in broad terms uncertainty is defined as dynamic conditions that cause doubt, ambiguity or confusion as to what course of action to pursue. In the absence of indisputable or unchanging facts planners are often forced to make assumptions on what they believe to be true. The more dynamic a situation is the more assumptions must be made. The more these assumptions change or become unclear the greater amount of uncertainty. Thus uncertainty can be thought of as "imprecise estimates of future consequences conditional on present actions" (March, 1994, p. 178).

Uncertainty can be further broken down into two distinct factors that are alluded to above. The first is unpredictability. Unpredictability occurs when the environment is very dynamic. Because the situation is still changing or evolving, planners are unable to establish a cause and effect relationship between critical variables. Thus it is difficult to determine which course of action is the best one to pursue because it is hard to determine a set sequence of events (Burton and Obel, 1995).

The second factor that creates uncertainty in the environment is complexity. Complexity is defined as "the number and relatedness of environmental elements that

affect an organization" (Hodge et al., 1996, p.107). Highly complex environments have large numbers of variables or factors that affect the decision making process. The more interdependent these variables are, the greater the level of complexity. Complexity hinders the decision makers ability to evaluate and process information.

Figure 1 serves to illustrate the concept of uncertainty. It shows graphically how the concepts of complexity and unpredictability are linked to uncertainty. The model depicts how an increase in any of the initial values increases the total level of uncertainty.

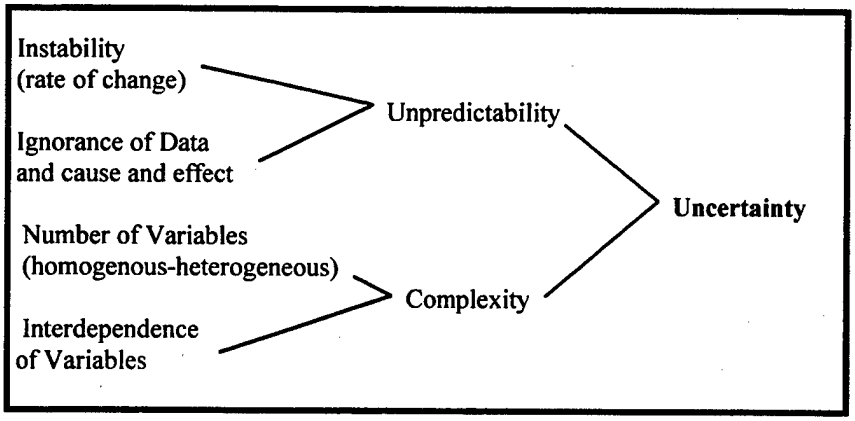

Figure 1. Deconstructing Uncertainty (Lawrence, 1981, pp. 311-337)

In a relatively stable and predictable environment, organizations are able to buffer and insulate themselves from the factors that create uncertainty. Planners can base their strategies and decisions on established rules, and procedures. Their planning process can follow simple, standard procedures for picking the one best course of action since they have accurate knowledge of relevant facts as well as the consequences of all possible choices (March, 1994).

Organizations that are confronted with dynamic environments do not have this luxury. "Organizations that must interact with many sectors, or elements within those sectors in which the elements or sectors are unrelated face a complex environment"

(Hodge et al., 1996, p.107). The result is they must adapt their structures, rules and procedures more radically to cope with a wide variety of unique problems. As uncertainty increases so does the demand for faster, more efficient information processing.

D. THE PROBLEM OF UNCERTAINTY

> Decision makers do not consider all consequences of their alternatives. They focus on some and ignore others. Relevant information about consequences is not sought, and available information is often not used. Instead of calculating the "best possible" action, they search for an action that is 'good enough' (March, 1994).

Planners have a difficult time during periods of great uncertainty. They feel constrained by the unpredictability of events. As the number of events increase, planners experience information overload due to uncertainty over what is important and what is not. The problem is that uncertainty caused by a lack of information, too much information, or conflicting information creates cognitive and motivational biases among planners (Arquilla, 1997; Jervis, 1989; Lebow, 1981; Posen, 1984). Thus planners tend to overlook information they already have; they ask for more information and then ignore the information they requested (March, 1994). As Robert Jervis notes, " The beliefs people hold and the inferences they draw do not change quickly in response to information they receive: people—statesmen, scientists and individuals in their everyday lives—tend to act in accordance with theories they already subscribe to rather than to fresh data" (Jervis, 1989, p. 196).

The bottom line is that the natural human tendency when faced with difficult situations is to take short cuts. These short cuts are known as heuristics. Heuristics are patterns or "rules of thumb" that individuals use in place of detailed analysis and

calculation (March, 1994). Thus the tendency is to formulate plans based more on past experiences than on present conditions. While this phenomenon is not necessarily bad, it can lead to faulty planning if changing conditions render the operators assumptions obsolete and flawed.

Based on these natural tendencies, planners often make two critical but common mistakes when faced with uncertainty (Courtney et al., 1997). The first mistake is to oversimplify a situation. Figure 2 below depicts this point. In Box 1 the oval illustrates a planning problem. Box 2 illustrates how narrowly focused planners will approach problems. They will typically focus on a single point of view or one course of action. These types of planners tend to overestimate their own ability and underestimate the enemy's ability. Box 3 depicts the consequences of approaching problems in this manner. The planner in this scenario has missed critical aspects of the problem (the area of the circle depicted outside the arrows). These types of planners approach problems with an overly narrow frame of reference. The end result is they don't see the real threats or take advantage of opportunities until it is too late. This becomes the narrow mind approach to planning.

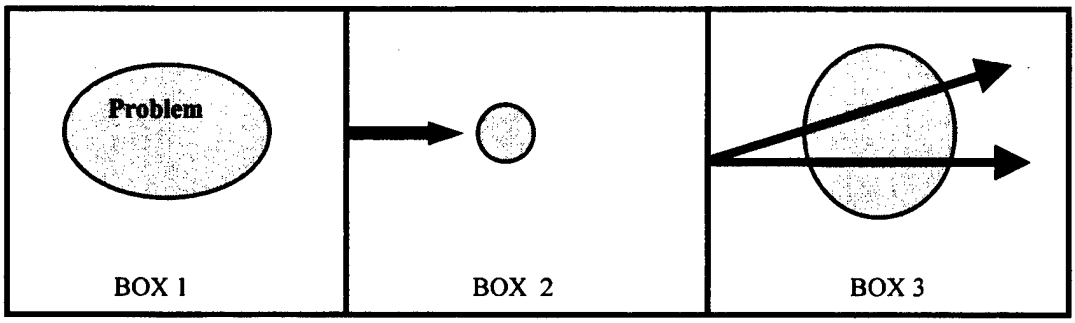

Figure 2. "Narrow Mind" Strategy

A perfect example of the consequences of the "narrow mind" approach to uncertainty is illustrated by the events that led up to Operation Market Garden during World War II. The operation was designed to take the three biggest bridges that crossed the Rhine River into Nazi Germany. The bridges were located at Arnhem, Nijmegen and Grave. Two American and one British Airborne Division would seize the bridges in a lighting strike and then hold them until better equipped conventional forces relieved them in place. One of the planners of the Operation Brian Urquhart was particularly distressed with the cavalier attitude that seemed to plague senior planners. Urquhart observed that they seemed to believe that the operation had succeeded before they had even executed it.

> As I worked day and night on the information available in the topography of the area, the aerial photographs showing German positions and anti-aircraft emplacements, the information coming in from various sources including the Dutch Resistance, and the mounting evidence that the German Army routed in Normandy was re-forming itself, I became increasingly anxious. I was also worried by the state of mind of General Browning and my brother officers. There seemed to be a general assumption that the war was virtually over and that one last dashing stroke would finish it. The possibility of German opposition was scarcely considered worthy of discussion. The 'Market Garden' operation was constantly referred to as 'the party'. It was said that Colonel John Frost, the gallant commander of the 1st Parachute Battalion, was considering taking along his golf clubs and ceremonial mess uniform (Urquhart, 1987 p. 70-71).

As the operation drew closer and closer Urquhart continued to urge his senior commander, General Browning to look at the growing evidence of German armored strength in the vicinity of the bridges. The implications were clear. It would be very difficult for the lightly armed and equipped airborne troops to hold the objectives for a long period of time against such forces without heavy conventional support.

> When I informed General Browning and Colonel Walch of this development, they seemed little concerned and became quite annoyed when I insisted on the danger. They said as I remember, that I should not worry unduly, that the reports were probably wrong, and in any case the German troops were refitting and not up to much fighting" (Urquhart, 1987 p.72).

To his credit Urquhart was not deterred by his commander's rebukes and continued to press Browning to reconsider the information that showed heavy German activity in the area. In the end for all his troubles Urquhart was relieved of his duties and was ordered to go on sick leave immediately. One of the units doctors, Colonel Eggar informed Urquhart that he was "suffering from acute nervous strain and exhaustion" (Urquhart, 1987, p.73). The operation was executed as planned and was according to all accounts a disaster for the Allies (Ryan, 1974). The Germans in actuality were fully capable, motivated and prepared to retake the bridges. During the debacle more than 17,000 Allied soldiers were killed, captured, wounded or missing (Urquhart, 1987). Any hopes of ending the war early had been dashed by the ill-conceived operation.

A second common mistake is to overestimate uncertainty. Planners become overly fatalistic and deterministic in their ability to control events. Figure 3 depicts this point. In Box 1 the oval again represents the planning problem. Box 2 illustrates how certain planners become overwhelmed and overloaded by the details and complexity of the situation (information overload). Box 3 illustrates the consequences of this fatalistic and deterministic approach. Their response is to apply a less than rigorous or complete analysis of the situation. Potential problems are ignored or "wish away." This becomes the "just do it" strategy (Courtney et al., 1997). Again the result is that planners in this scenario have missed critical aspects of the problem.

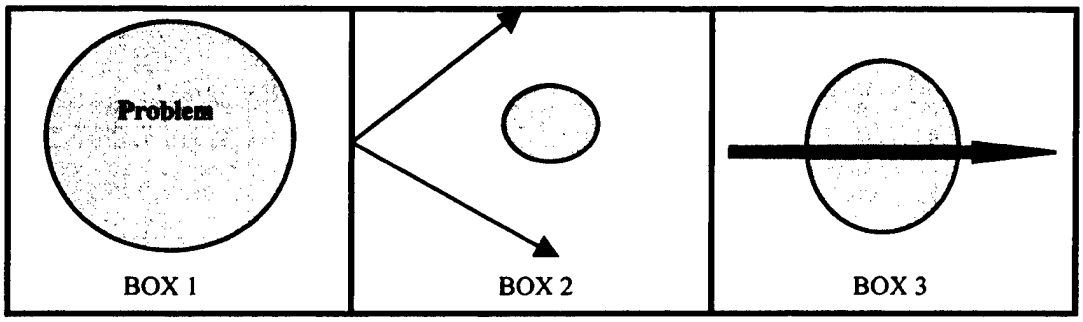

Figure 3. "Just Do It" Strategy

A good example of the "just do it" approach is illustrated by the events that led up to the debacle at Tobruk in September 1942. Many of the senior planners of the ill-fated raid publicly expressed serious misgivings prior to conducting the raid (Gordon, 1987). They argued that the plan was hopelessly complicated and was extremely risky at best. Captain David Sterling would comment that "the whole plan [had] sinned against every principle on which the SAS (British Special Air Service) was founded. Another would comment, "from the start the whole concept was too complex to be workable. Moreover, the whole process of planning seemed from the outset to have been handled in a recklessly lighted-hearted manner" (Gordon, 1987, p.121). Despite all these misgivings by men in a position to change or scrub the mission, they amazingly went ahead with the whole operation with a sort of grim determination (Gordon, 1987; Owen, 1981). It is quite clear that the mission had taken on a life of it's own and no one seriously considered canceling it. It was the worst defeat that British Special Forces had ever suffered. It seems clear that the planners had adopted a dangerously fatalistic attitude about the whole mission. Instead of attempting to account for uncertainty they became overwhelmed and consumed by it — hence just do it.

As illustrated in the previous vignettes though planners try to be rational in their approach to solving difficult problems, they are constrained by the limits of their cognitive capabilities. As Richard Lebow observes, there seems to be three major "pathologies" that effect decisionmakers in their ability to plan. One, they tend to over evaluate *past* performances in relation to *present* realities. Two, they exhibit overconfidence in plans to which they are already committed to. Three, they tend to be insensitive to information that contradicts their plans (Lebow, 1981, p.112).

The bottom line is that humans only can process so much information at one time. When confronted with great uncertainty, people have a natural tendency to simplify problems into something that is familiar and comfortable to them. The problem is that planners tend to draw from a limited past of observed events instead of a large pool of possible outcomes. They use a single frame of reference to analyze a problem. Thus their actions may be less than completely rational in spite of their best intentions. If planners do not consider all the information, it is likely to lead to faulty or incorrect assumptions (March, 1994). Faulty assumptions increase risk because plans will inevitably be based on incorrect or incomplete premises. On the ground this can often lead to mission failure. The special operators are left unprepared for events. The result is that they lose momentum. Rather than permitting the operator to control and dominate events, events dominate and control the operator.

Unfortunately, individuals will always be limited by their own bounded rationality and personal biases when developing plans. It is an inevitable part of human nature. Fortunately, there are techniques to overcome these inherent problems. Successful planners *recognize* and *account* for uncertainty during the planning process. They use

various strategies and tools for developing robust plans that work quite well at controlling uncertainty. The following theory addresses this concept.

E. THEORY: CONTROLLING UNCERTAINTY

"In the fields of observation chance favors only the prepared mind."

— Louis Pasteur

SOF missions are successful when they are able to control uncertainty — to mitigate and reduce the level of uncertainty in the planning phase of an operation (McCormick, 1997). The logic is as follows. The more operators are able to reduce uncertainty, the more of the operational environment they are able to control. The more the operators are able to control the environment (to include their adversary) the less risk they incur. Finally, the more that the operator is able to reduce risk, the greater their chances are for success. Figure 4 illustrates this concept.

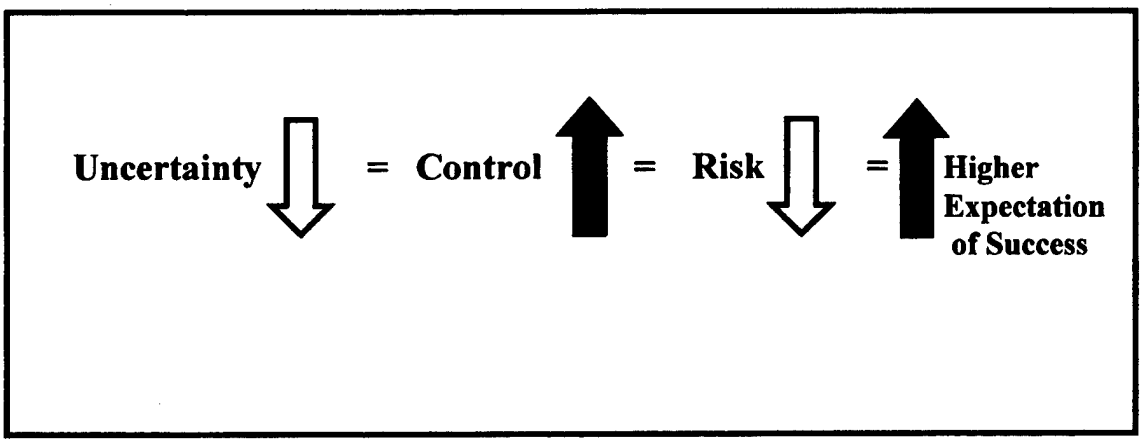

Figure 4. Control Theory

The issue of *control* is critical to understanding why SOF missions succeed or fail. The object is to maintain or gain control (dominance) over as much of the operational environment as possible. This concept is illustrated in Figure 5. The oval represents the operational environment that both SOF and their opponent "occupy" at a given time. A

subset of the environment is controlled by the operator and a subset is controlled by the opponent (a zero sum game: BOX 1). The area of the environment controlled by the enemy represents the amount of uncertainty to the SOF operators. The more the operators are able to reduce the uncertainty (pushing the line to the right) the more control they have relative to their adversary (BOX 2) (McCormick, 1997). The end result is that it limits the adversary's ability (his options) to control/effect events in the environment. By reducing the enemy's choices, options and ability to respond the way he desires, he is forced to react to the operator's actions.

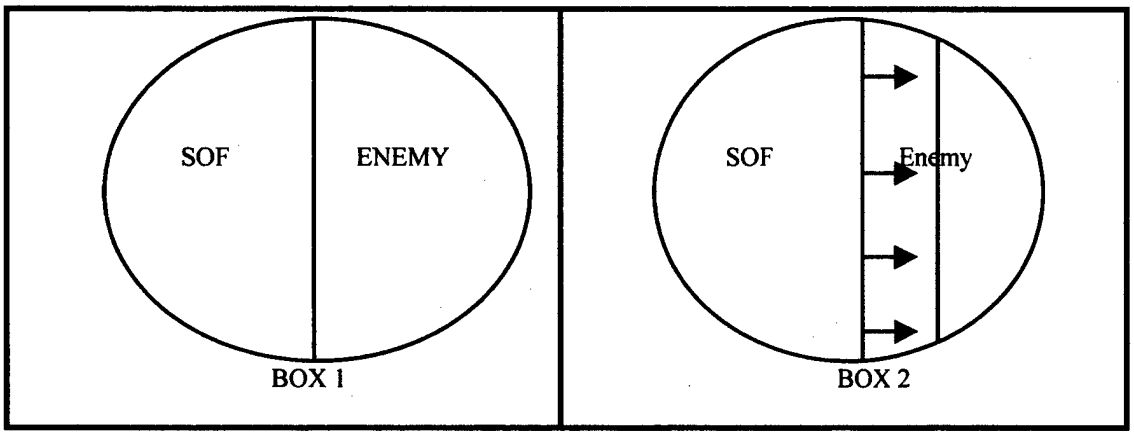

Figure 5. Control Theory

It is important to emphasize that there always will be an inevitable amount of uncertainty in the operational environment. It is impossible to mitigate every uncertainty. The key is to reduce it enough to where the effects are relatively minimal. This allows the operator time to quickly adapt in the face of shifting external requirements that are inherent in dynamic environments (McCormick, 1997). This creates what the author calls "operational slack". If and when the operators lose surprise, speed, or command and control, they do not lose momentum. Thus operational slack provides the operators with flexibility or "breathing room" to improvise and adapt based on the local situation. It

expands the options and opportunities available to the operators instead of imposing limitations or constraints on his choices. As Colin Gray observes, "With so much uncertainty and so little margin for error, it is not surprising that special forces plan their operations in excruciating detail, mastery of which can provide a sound basis for emergency improvisation" (Gray, 1996, p.147). The question becomes what can planners do to control the environment in order to push the line to the right?

Successful planners use three techniques to accomplish this difficult task. These techniques are *adaptive learning*, *shaping,* and *hedging*. SOF planners use these three techniques to "whittle" away at the uncertainty region and control the operational environment prior to the execution phase. These three planning tools are essentially strategies that planners use to manage a dynamic environment. While they are distinct concepts they are not applied separately. They operate in synergy to create a robust plan.

F. SCOPE

Planning in the face of uncertainty is a dilemma that is not exclusively limited to the realm of the special operations world. The author recognizes that this subject has much broader implications both to the rest of the military and the business world. However, to limit the scope of this study, this thesis will test its theory of special operations planning by focusing specifically on direct action missions at the tactical level. This thesis also does not attempt to analyze the strategic link of planning and execution, nor does it address the planning consideration of SOF in protracted campaigns. The typology of planning developed in this study makes no claim to universality. It purports only to identify and describe important patterns of SOF planning in the cases studied. The purpose is to call attention to the important attributes of effective planning for

uncertainty in the special operations environment. The focus is at the tactical planning and decision making level in direct action missions and specifically on the planning techniques used to mitigate uncertainty and reduce risk in those operations.

G. METHODOLOGY

The remainder of thesis will be devoted to exploring and expanding on the conceptual planning tools introduced by the author — *adaptive learning, shaping, and hedging.* Three historical case studies will be used to illustrate and emphasize important points of the theory. While there is a vast pool of special operation cases to choose from, useful comparative analysis requires that the cases should be relatively similar.

The cases were chosen carefully to create a tough test for the theory. The cases that will be studied are the Israeli raid and hostage rescue at the Entebbe Airport in Uganda, Otto Skorzeny's raid to rescue Mussolini in Italy, and the U.S. raid to rescue POWs at Son Tay, North Vietnam. These cases were picked for the following reasons. First, in each case the special operators conducting the mission were specifically organized, trained and equipped to carry out such operations. Second, in each case the special operators were faced with a difficult planning scenario that exhibited roughly the same level and degree of uncertainty: a long range hostage rescue in enemy held territory. This is arguably the most difficult type of special operation to conduct since it requires successful infiltration and exfiltration on the part of the operators. Third, in all the cases the operators faced catastrophic failure from potentially dangerous opponents. While it is true that tactical skills of each opponent varied, mass does count. In each case the special operators were faced with opponents that were well armed and determined. The enemy had the ability to very quickly call on large reaction forces that were capable of destroying

the special operators. Finally, in all the cases their success or failure had strategic implications. In each case the operators were used to solve a national problem of extreme strategic importance. As a result the special operators had the backing, support and resources of their respective national authorities to include national intelligence assets in order to properly conduct the mission.

The author concludes by analyzing how the planners in each case mitigated and controlled for high levels of uncertainty in the planning and preparation phases of each operation. Specific recommendations will be offered concerning how special operators and planners can increase the probability of success in future operations by properly applying control strategies and techniques discussed in the thesis — *adaptive learning, shaping and hedging.*

II. ADAPTIVE LEARNING

> The ability to learn faster than your competitors may be the only sustainable competitive advantage (De Geus, 1988, p. 71).

A. DEFINITION

The first tool that planners use to overcome uncertainty is a concept the author calls *adaptive learning* (Courtney et al., 1997; Schwartz, 1991; Sherden, 1998). Adaptive learning directly addresses the issue of complexity. If you recall one of the fundamental problems that most planners often face is not too little information but too much information. Highly complex environments have large numbers of variables or factors that affect the decision making process. The more variables there are, the more difficult it is to sort out what is important and what is not. The more interdependent these variables are, the greater the level of complexity. The greater the complexity (number of interrelated variables) the greater the uncertainty.

Adaptive learning is the art of cutting through the complexity problem: of identifying and focusing on the critical issues related to the specific situation. It is not merely collecting all the facts of a given situation, but *learning* what facts are important to solving the particular problem (Senge, 1990). This is the essential distinction. As a planning tool, adaptive learning connotes speed, agility, and flexibility of thought.

Adaptive learning is the process of gaining and applying *relevant* knowledge faster than your opponent given the same chaotic environment. The idea is, "if you can think faster than your enemy, you can react and move one step ahead of him..." (Edwards, 1997, p.64). It involves collecting, processing and utilizing the available information in innovative, creative ways (multi-framed thinking). This is accomplished by understanding more of *how* the opponent thinks than *what* he thinks — his cognitive

and motivational biases (what he believes to be true and what he wants to be true). Knowing how the enemy thinks creates opportunities and advantages that can be exploited with deception and clever ruses. Thus, adaptive learning is the process of applying ones knowledge of the enemy (how he thinks) against him to achieve the desired result.

There are numerous historical examples of the successful use of adaptive learning techniques. Perhaps the oldest and most famous use of adaptive learning can be seen in Homer's, *Odyssey*. For more than 10 years Greek armies had laid siege to the fortified city of Troy. Using standard conventional military techniques, the Greeks had been unsuccessful in defeating the Trojans defenders. The Greek prophet, Calchus implored the senior Greek leaders to pursue a better strategy. "Stop battering away at these walls! You must devise some other way, some ruse...We cannot take Troy by force alone, so we must find some cunning stratagem" (Bell and Whaley, 1991, p. 18).

The Greeks warrior, Odysseus conceived (with the help of the sympathetic Goddess Athena) a clever scheme to breach the walled city with only a few brave and bold warriors (Arquilla, 1996; Bell and Whaley, 1991; Graves, 1996). He had the Greeks construct a giant wooden horse that was hollow inside. Once the structure was complete the Greeks hid a small band of warriors inside. The remainder of the Greek army gave all the necessary indications that they were retiring from the battlefield. They packed up their supplies and equipment, burned their camp and sailed away in plain sight of the Trojans. Just before they departed however, they pushed the large wooden horse up to the gates of the city and left. The intent was to convey to the Trojans that the Greeks had

given up their hopes of conquering the city. Thus the wooden horse was left as a tribute to the Trojans.

The ruse worked. The Trojans opened their gates and pushed the horse inside the walled city. That night, while most of the Trojans were asleep from a night of celebrating their apparent victory over the Greeks, the warriors inside the horse slipped out and opened the gates. The warriors then signaled the Greek fleet that had sailed just over the horizon during the day. The Greeks armies returned and sack the city of Troy over a period of three days (Bell and Whaley, 1991; Graves, 1996).

The deception succeeded and Troy fell because Odysseus (with Athena's help) finally understood how the Trojans thought. They were just as weary of the siege as the Greeks were. The ruse played to the Trojans inherent biases. They *wanted* to believe the Greeks had given up (motivational bias). This false assumption was reinforced when they physically saw the Greeks sailed away in defeat (cognitive bias). Thus, the Greeks achieved a quick victory with cunning what they could not do in 10 years with conventional siege tactics.

The Mongols in the thirteenth and fourteenth century were particularly good at using adaptive learning techniques on a regular basis as part of their doctrine. During this period, the Mongols managed to conquer much of China, Korea, Persia, Afghanistan, Iraq, and Russia with a remarkably small standing army for that era — roughly 129,000 men (Bell and Whaley, 1991; Marshall, 1993; Martin, 1971). They could ill afford to waste their limited resources on bloody encounters. Thus, the Mongols achieved their success not through superior numbers or brute force, but through their tactical and strategic planning skills. Before initiating any major operation, the Mongols would

thoroughly gather intelligence on the intended target and learn all they could about their opponent. Once the Mongols had obtained enough intelligence on a particular target they would incorporated numerous ruses, tricks, and deceptions to achieve advantageous over their opponent. The techniques they employed enabled the Mongols to exaggerate their true strengths, masked their actual movements, and concealed their real intentions. As a result their opponents were kept off-guard and off-balance. This strategy allowed the Mongols to often defeat larger forces with little to no actual bloodshed (Bell and Whaley, 1991; Marshall, 1993; Martin, 1971).

Figure 6 illustrates the concept of adaptive learning as it applies to special operations. Critical knowledge on the enemy is gained over time (BOX 1). The knowledge is used to gain insight on the enemy and learn how he thinks. This knowledge succeeds in enabling the special operator to control more of their environment (BOX 2). Thus the more critical knowledge one can gain on one's opponent, the less uncertainty one faces, and the more uncertainty you generate for your opponent (McCormick, 1997).

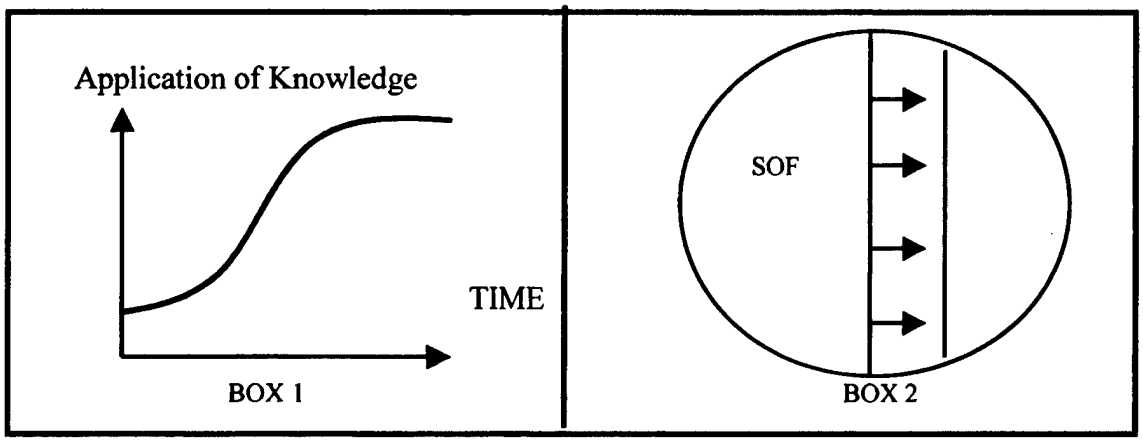

Figure 6. Adaptive Learning Strategies

The remainder of this chapter will be devoted to illustrating how the concept of adaptive learning applies to a modern day case study. No case better illustrates this than *Operation Thunderball* — the Israeli raid to rescue hostages at Entebbe in 1976. This case is both useful and relevant because it illustrates how the planners of *Operation Thunderball* methodically used adaptive learning techniques to exploit their opponents and reduce uncertainty.

B. ENTEBBE

> The Jews never deluded themselves. In any clash or confrontation, they would always be inferior numerically. On the face of it, a nation of three million can have no chance of holding out in endless war against one hundred million neighbors. And in Israel's twenty-eight years of existence, the Arab armies have always had more men, more tanks, more planes, more ships. The implication: in the face of massive enemy numbers, the army has been obligated to use imagination, cunning, wisdom, and originality. The bent for special operations, combat subterfuge, and surprise is deeply stamped in the character of the Israeli soldier from the General Staff down to the lowliest private.
> (Ben-Porat et al., 1976, p. 204).

1. Situation

On 27, June 1976, four terrorists with connections to the Baader-Meinhof Gang and the Popular Front for the Liberation of Palestine (PFLP) hijacked Air France Flight 139 during the plane's lay over in Greece. The terrorists forced the Air France pilot to fly to Entebbe, Uganda after refueling in Libya. Once at Entebbe, the terrorists moved the hostages to Entebbe's old terminal building and separated the Israelis and Jews from the rest of the passengers. There were 77 Jewish and Israeli citizens among the 268 passengers and crew. Later the non-Israeli and non-Jewish passengers were flown safely back to France. It was clear that the Israelis were the ultimate targets of the terrorists (Betser and Rosenberg, 1996; Herzog, 1996).

The terrorists demanded that 53 comrades in arms be released from jails in Israel (40 were in Israeli jails), West Germany, Kenya, Switzerland and France. They also demanded a 5 million dollar ransom fee from France. If their demands were not met they would execute the hostages. The deadline was set for 1300hrs on 4 July (Stevenson and Dan, 1976).

While Israel had a long established policy of not negotiating with terrorists, it appeared to be a *fait accompli.* To most military observers the prospects of a military solution seemed suicidal. Israeli military planners were confounded by a host of problems and uncertainties from the very beginning. Where would the plane finally land? Was Uganda the final destination? Were the Ugandans helping the terrorists? Was it just the Israelis that the terrorists were after?

The risk of any kind of military operation appeared to be extremely high. The hostages (nearly 100 men women and children) were being held in a hostile country 2200 miles from Israeli territory. A dozen terrorists and a battalion of well-armed soldiers were guarding the hostages around the clock.

The Ugandan military was also a major factor to consider and not to be taken lightly. The Ugandan Armed Forces were very well equipped for a poor nation. They were quite capable of defending their air and ground space. At the time of the crisis, over half the Ugandan Army (10,000 soldiers) was stationed near Kampala, which was only 20 miles from Entebbe. The Ugandan Army had plenty of modern armored vehicles and artillery pieces and the Ugandan Air Force had over fifty combat planes to include 30 MIG-9s and MIG 17s. Additionally a squadron of MIGs was on the Entebbe runway (Garret, 1980).

As if the situation was not difficult enough, the Israelis were also in a time crunch. If the Israelis were to attempt a rescue operation they had only about 96 hours to plan, rehearse and execute it before the deadline expired and the hostages were killed. Despite the difficult situation, the Israeli Prime Minister Yitzhak Rabin directed that the Israeli military to begin developing a rescue plan.

2. Planning

> ...less risk exists in a special operation planned ahead of time, down to its most minute detail, than in any large-scale operation involving thousands of troops, heavy vehicles, and artillery support. A well-prepared operation gives the advantage, through initiative, to the attacker, not the defender. ...Our strength never lay in our sheer force but in our creative use of that force (Betser and Rosenberg, 1996, p. 228).

The Israelis were no strangers to planning hostage rescues. They were well rehearsed and had learned a great deal from these types of operation. In the spring a 1972, a faction of the PLO had hijacked a Sabena Airliner full of Israeli passengers. In a brilliantly bold but simple plan, Israeli special operators disguised as airline workers stormed the plane and succeeded in killing or capturing all the terrorists and safely rescuing all the passengers. It was the first successful airline hostage rescue in history (Betser and Rosenberg, 1996). Many of the same men that had been involved in planning the hostage rescue of the Sabena Airliner in 1972 were now involved in the Entebbe crisis.

For the Entebbe crisis the fundamental problem that the planners faced was how to deal with the Ugandan military presence. Success hinged upon infiltrating and approaching the target undetected. The question was how to accomplish this? Even if the operators could successfully land undetected, how could they move quickly up to the terminal without alerting the Ugandan security force? The terrorist would have plenty of

time to react and kill the hostages. All the planners agreed that this was the key to the operation (Ben-Porat et al., 1976; Betser and Rosenberg, 1996; Herzog, 1996). If they could get past the Ugandan security, they could defeat the small band of terrorists.

From this point on the planners devoted all their resources and focused their efforts with how to deal with the Ugandan outer security force. Before they could act however they had to learn as much as they could about their opponents. Information began to steadily trickle in from various overt and covert sources. Fortunately for the Entebbe planners, Israel was blessed with an extremely effective and highly evolved intelligence network (The Mossad). A captured CIA document released by Iranian militants who overran the US embassy in Teheran detailed the US's glowing assessment of Israeli intelligence capabilities. "Israel's intelligence and security services are among the best in the world. Their expert personnel and sophisticated techniques have made them highly effective, and they have demonstrated outstanding ability to organize, screen and evaluate information obtained from recruited agents, Jewish communities and other sources throughout the world" (Raviv and Melman, 1990, p.3). Within hours after the terrorists had secured the hostages at Entebbe, Mossad agents were able to establish a base of operations in Nairobi Kenya. Operating from this clandestine location, Mossad agents were able to provide planners back in Israel with valuable "real time", "eyes on" intelligence on the situation in Entebbe. Utilizing small boats, Mossad agents rowed across Lake Victoria and conducted a clandestine ground reconnaissance of the target area (Raviv and Melman, 1990, p. 218-219).

The planners also had readily available access to a wide variety of overt information on Entebbe as well. Perhaps the most unusual "open source" intelligence

asset was Idi Amin, the self-imposed dictator of Ugandan. To find out the real intentions of the Ugandans, the Israelis employed the services of one Burka Bar-Lev. Burka Bar-Lev had been the Israeli Mission Chief to Uganda. During his tenure, Bar-Lev had established excellent rapport with Amin and still kept in contact with him on occasions. Bar-Lev was encouraged by Shimon Peres to call his "friend" to find out just how involved the Ugandans were in this whole crisis. Their phone conversations were recorded and analyzed both by Israeli intelligence personnel and psychiatrists to help develop a personality profile of the leader as well as to establish his possible motives and intentions concerning the hostages. From Bar-Lev's conversations with Amin it was clear that the Ugandans were aiding and supporting the terrorist (Ben-Porat et al., 1976; Betser and Rosenberg, 1996; Stevenson and Dan, 1976).

The planners also gained a lot of valuable information from the personal experiences of Israelis that had been stationed in Uganda. The Israeli military had spent numerous months training Ugandan pilots and soldiers in 1972 before relations had soured with Idi Amin. Many of the Israeli Air Force pilots were very familiar with the Entebbe Airport and all the normal routines, including Ugandan air traffic control procedures (Betser and Rosenberg, 1996; Stevenson and Dan, 1976).

The planners discovered through their intelligence sources that a British transport plane was due to land at Entebbe just after midnight on 4 July. The Israelis reasoned that they could infiltrate a rescue force by air right behind the British aircraft without attracting attention from the Ugandan air traffic controllers. If the Israeli planes could shadow the British plane landing at Entebbe, an "unscheduled" landing would not alarm the air traffic controllers. The rescue force would be able to land unnoticed.

Additionally, the regular flight line noise that was normal to all airports would help mask the operator's movements to the old terminal (Betser and Rosenberg, 1996).

The question now turned to how to get to the hostages. Again the planners focused their efforts on gathering information that would help solve this difficult problem. One of the best sources of information came from a French hostage that had been release after spending three days at the Entebbe Airport. This particular hostage had served in the French military. During his time at Entebbe he had made numerous mental notes on details he thought would be important for any military options to rescue the hostages (Betser and Rosenberg, 1996). After his release in Paris, Mossad agents quietly contacted and interviewed this former hostage. From his debriefing the Israelis gained invaluable insight into the capabilities, weaknesses and daily routines of both the terrorists and the Ugandan guards.

Again, the Israelis were fortunate that many of their soldiers had spent time in Ugandan training soldiers. One of those men was Major Muki Betzer. Betser had spent a considerable amount of time training with Ugandan troops in 1972 and was quite familiar with the tactics and skills of the Ugandan soldiers. He was now the reserve commander of the elite Israeli counter-terrorist unit, The Sayert Maktal (special scouts) and was one of the primary planners of Operation Thunderball. Based on his personal experience he recalled that many high-ranking leaders in the Ugandan Army traveled around in black Mercedes. For security purposes these entourages were typically escorted by one or more Land Rovers of troops to act as bodyguards. It was also not unusual for these dignitaries to visit or inspect their troops from time to time. From this information and the

information gathered from the released French hostage, the Israelis were able to devise a clever scheme to get past the Ugandan outer security forces without alerting the terrorists.

The Israelis acquired a black Mercedes and several Land Rovers identical to the ones used by the Ugandan dignitaries. Sayeret Matkal operators with blackened faces and Ugandan style uniforms would slowly drive through the Ugandan checkpoints so as not to arouse suspicions. They would keep their headlights on and even offer salutes to the guards who would certainly challenge their arrival. They could literally drive right up to the main entrance of the old terminal without firing a shot (Betser and Rosenberg, 1996).

Once at the old terminal the special operators would focus on eliminating the terrorists and freeing the hostages. The special operators in the Mercedes and the first Land Rover would be the "break-in force". The operators in the third Land Rover would provide outer security to the break in force until reinforcements landed in follow-on planes. The follow-on forces made up of paratroopers would support and isolate the Ugandans security force with heavy weapons, armored vehicles and standard infantry tactics (Betser and Rosenberg, 1996; Stevenson and Dan, 1976).

3. Execution

> We did not celebrate a victory that night. For the Unit, even one casualty is proof that our performance did not match our plan. To maintain its abilities, a unit like Sayeret Matkal must always learn from its mistakes, facing honestly and truthfully what went wrong (Betser and Rosenberg, 1996, p. 269).

The execution of *Operation Thunderball* was conducted brilliantly, but it was not flawless. Contrary to popular belief, everything did not go according to plan. The operators made numerous mistakes on the ground: mistakes that resulted in the only casualties of the operation.

Mistakes occurred on the approach to the terminal by the assault force. The plan had called for the operators who were disguised as distinguished visitors, to very calmly drive by the Ugandan sentries as if nothing was unusual. This did not happened. As the black Mercedes crammed with special operators approached, a lone Ugandan sentry snapped to attention with his rifle and ordered the convoy to advance. The actions of the Ugandan guard was expected to happen but for some reason that will never be known, Colonel Netanyahu (Commander of the Sayeret Matkal and the assault force commander) decided to change the plan (Betser and Rosenberg, 1996). Netanyahu ordered his driver to swerve closer to the sentry so he could finish him off. Betser recalls arguing with Netanyahu to leave the sentry alone. Netanyahu ignored Betser and again ordered the driver to swerve closer to the sentry. Both Netanyahu and another operator, Giora Zussman, fired their silenced 22 caliber pistols at the surprised sentry.

This one mistake caused a chain reaction of mistakes to occur. The sentry fell, but not for good, as he tried to get back up, an operator in the last Land Rover silenced him forever with a long (and very loud burst) from his AK-47. The orders had been very clear; no shooting until the assault force was inside the old terminal building. The assault force had lost its element of surprise with several hundred meters to go.

At this point the assault force began to panic when they realized what had happened. Ugandans alerted by the firing started returning fire sporadically at the convoy that was now speeding very quickly to reach the terminal. Instead of parking five meters from the entrance the special operators abandoned the vehicles with still about 50 meters to go. Racing toward their assigned entrances the assault force began receiving more accurate fire from Ugandan guards positioned around the terminal.

When the operators finally reached the building instead of moving with their teams to their assigned entrances the assault team bunched up near one of the entrances. According to Betser, there was an agonizing pause. In the chaos, the operators became confused as to where all their teammates were, and which were their assigned entrances. Betser discovered to his horror that his entrance door was blocked. He was forced to go in a different door.

The situation inside the building was just as confusing. As the assault force entered the building, the now alerted terrorists were firing from among the hostages. Relying on their skill and marksmanship, the assault force succeeded in killing six terrorists. Unfortunately in the chaos and confusion, the operators mistook a hostage for a terrorist when he leaped up too quickly. Regrettably, the operators shot and killed him by mistake. Two other hostages were also killed due to ricocheting bullets. At this point Betser also learned that a sniper from the control tower had mortally wounded Colonel Netanyahu. The control tower had been identified in the planning and rehearsal phase as a critical piece of terrain that the Israelis must control. It was supposed to have been silenced by the support forces. It never was. Throughout the short duration of the operation, shots continued to come from the control tower. It was never effectively silenced (Betser and Rosenberg, 1996; Stevenson and Dan, 1976).

C. ANALYSIS

1. Was Operation Thunderball a Success?

Clearly the answer is yes. *Operation Thunderball* was an incredible victory for Israel both strategically and tactically. Strategically, it was a success for several reasons. First, it demonstrated to the world Israel's public pledge and commitment not to negotiate

with terrorists. Second, it illustrated Israel's capability, determination and resolve to fight and win the battle against international terrorism. Third, it sent a clear message to would-be terrorists that they were not beyond the reach of the Israeli Defense Force (IDF). Fourth, it helped to raise the morale of Israeli citizens. It demonstrated Israel's firm public commitment to protect her own citizens at all costs.

The operation at Entebbe was also a solid tactical success for Israel because the planners and operators accomplished all their pre-stated goals. First, the operation was conducted with minimal casualties to the hostages and the rescuers. The planners anticipated a minimum of 10 casualties to the rescuers and the hostages. On the ground the operators incurred only four casualties. Second, the operation was conducted quickly and according to schedule. The planners anticipated the operation would take at least 60 minutes. The actual operation took only 57 minutes. Finally and most importantly the plan accounted for and controlled uncertainty. The operators were prepared for and reacted to every contingency on the ground. The operators controlled and dominated the operational environment for the entire duration of the mission. It is even more remarkable to consider that the planners developed *Operation Thunderball* in just under four days and the operators had only a day to rehearse before carrying out the mission (Betser and Rosenberg, 1996; Herzog, 1996; Stevenson and Dan, 1976).

2. Was Operation Thunderball a Tough Test for the Theory?

The Entebbe case represents an extremely tough test in all aspects. First, one has to consider and appreciate the sheer distance of where the hostages were being held with respect to Israel. The operators had to infiltrate into a hostile country that was more than 2000 miles away. Additionally with the exception of Kenyan, Ugandan was surround by

countries that were "less than sympathetic" to the Israeli situation. Thus if things went wrong the Israelis would find no safe harbor or quarter with neighboring countries. Second, was the sheer size and disposition of the enemy on the ground. While the Ugandans were certainly a fourth rate military force, mass does count. If the Israelis had been delayed on the ground, they could have easily been annihilated by sheer numbers of Ugandan troops in the vicinity of Entebbe. Finally, the Israelis were afforded little time to respond to a very difficult situation. There was a tremendous amount of uncertainty due to the dynamics of the event, the compressed planning schedule and sketchy intelligence. The Israelis had only about 96 hours to plan, prepare and execute a highly complex rescue operation.

3. Conclusion

On the surface it is puzzling how the Israelis were able to pull off such a brilliant operation. Clearly the operators made numerous mistakes in the first crucial minutes of the operation which resulted in the loss of surprise, speed and command and control. These mistakes could have arguably resulted in the ultimate failure of the entire operation. Yet despite these difficulties the operation succeeded. Why?

In a remarkably short period of time (a little under 96 hours) thanks in part to a highly evolved intelligence network the Entebbe planners were able to sort through a complex crisis, and reduce operational uncertainties with a cleverly crafted and cunningly executed plan. The Israelis succeeded at Entebbe not because of overwhelming force, superior speed or incredible surprise; they succeeded because they were able to outthink their opponents.

From the beginning of the crisis the Israelis never underestimate their opponent's ability or overestimate their own. They were careful not to draw too many conclusions or lessons from their past successes. One of the fundamental lessons that the Israelis had learned in dealing with terrorists is that they, (the terrorists) learn too. They realized that if they were to succeed they had to learn faster than the terrorists. As Muki Betser observes "Ever since the Sabena rescue in the spring of 1972, the Unit [The Israeli counter terrorist unit] had kept developing doctrines and methods for rescuing hijacked planes on the ground. We never used the same ploy twice. Just as we learn from each incident, so do the terrorists" (Betser and Rosenberg, 1996, p.231). Thus in order to succeed, Entebbe had to be approached differently than previous rescues.

It bears repeating that *adaptive learning* is all about thinking and learning faster than ones opponent. This creates the opportunities that are essential to defeating larger better equipped opponents. The Israelis gained the initiative over their opponents because their plan played to the inherent cognitive and motivational biases of their adversaries. The Ugandans and the PLO terrorists *wanted* to believe it was an impossible situation for the Israelis. Therefore the Israelis would have to negotiate. After all, the Israeli Prime Minister Yitzhak Rabin said he was willing to bargain for the release of the hostages (Betser and Rosenberg, 1996; Herzog, 1996). Thus while their opponents were quite complacent to believe this situation was a *fait accompli,* the Israelis used their available time wisely. In the short 96 hours sequence they were able to cultivate and craft an innovative plan that enabled them to seize the initiative against overconfident opponents.

III. SHAPING

> Know that the future isn't found; it is invented. It is shaped by people with the vision, courage, and wisdom to think beyond the boundaries of the known (Sherden, 1998, p.245).
>
> —Robert Kriegel

A. DEFINITION

The concept of shaping is the second key element to planning in uncertainty (Courtney et al., 1997; Sherden, 1998). Just as adaptive learning strategies address the problem of complexity; shaping strategies address the problem of unpredictability in the environment. If you recall, unpredictability is a function of how dynamic the situation is (the rate of change) coupled with an acute ignorance of data — an absence of a clear cause/effect relationship of the pertinent variables. Shaping strategies seek to reduce uncertainty by making an unpredictable situation irrelevant through innovation.

Shaping strategies accomplish this task by utilizing or applying new technologies or tactics against an opponent. As Bell and Whaley point out "technological innovations" produce the "impossible options" (Bell and Whaley, 1991). Thus instead of trying to predict the future, the object of shaping is to invent it. Shapers change the rules of the game and the size of the playing field to suit their advantage.

One of the earliest examples of shaping comes from the bible. It is the story of David and Goliath (Samuel 17:1-17:49). The Israelites and the Philistines were warring against each. As was the custom during this period each side would often choose a single combatant to decide the outcome of the entire battle. The Philistines had a very imposing champion named Goliath who was nine feet tall according to the bible and had a reputation as a fearsome warrior. For forty days Goliath would stand out on the battlefield in full armament and taunt the Israelites to send out a champion, but none of

the Israelites dared to challenge the giant, sword against sword. Finally a young Israelite boy named David accepted the challenge but walked onto the battlefield armed only with a sling and five stones. Goliath was totally bewildered by this apparently foolish and soon to be dead boy. David however had the last laugh. His first stone that he slung at the giant struck him in the head, killing him instantly and sending the demoralized Philistines into flight. The lesson is clear. Had David attacked Goliath sword against sword, it is certain the giant would have quickly slaughtered him. Instead David changed the rules of the game to his advantage and fought the giant on his terms (from a safe distance). He killed Goliath with a weapon that was not normally used in combat. Goliath was accustomed to fighting men with his sword at close distance, not having rocks hurled at him with a sling. He was totally unprepared for this "technological innovation" employed by the young Israelite.

As illustrated by the last example, shaping has the ability to generate great surprise for the user. By choosing the "impossible possible", the opponent is neither physically nor mentally prepared for your actions against him (Bell and Whaley, 1991). This also serves to increase the level of uncertainty for your opponent (while reduce your own uncertainty) by changing the rules that he is used to operating by (Courtney et al., 1997). Because you are using new tactics or technology against your opponent you effectively limit his available options to respond while expanding your own options to act. The bottom line is that shaping is effective because it creates advantages and options that are not available to your adversary.

A more recent example of shaping is illustrated by the German glider assault on Eben Emael. The sole purpose of the raid on Eben Emael was to enable the German

Army to cross the Albert Canal into Belgian territory. Once the Germans crossed into Belgium they would be able to quickly drive through France (the ultimate goal). The fort at Eben Emael stood in this way of this goal. Her powerful 75 and 125-mm guns could make it extremely difficult for the Germans to cross the canal over any of the three bridges that spanned it. Therefore the raiders had to disable the fort's guns before the German Army tried to cross the canal (Mrazek, 1970).

The Belgians also had realized the strategic importance of the fort's guns and had taken every known precaution to strengthen and protect the guns from possible attacks. They had strung miles of barbwire and sewn a minefield around the perimeter of the top of the fort to protect it from ground assaults. The gun positions themselves were also hardened to protect them from explosive charges and aerial bombardments. The casemates and cupolas built around the guns were constructed of heavily reinforced concrete and steel (McRaven, 1995).

Thus the Belgians considered the guns to be virtually invulnerable. The idea that a small band of commandos with explosive charges could disable the guns was utterly inconceivable to the Belgians who defended Eben Emael. It was not in the realm of the possible and therefore not planned against. Unknown to the Belgians however, the Germans had secretly tested a revolutionary new explosive devise that could defeat the walls of the cupola (McRaven, 1995). These "hollow charges" as they were called, when placed directly against a target could breach the cupolas and casemates. The Germans used this new invention to great effect against the very vulnerable Belgian guns. Had the Belgians been aware of such a devise they might have prepared the defenses of the fortress differently.

Shaping can also mean the application of existing technology in a way that was previous not considered for military use. Again let us turn to the assault on Eben Emael to illustrate this point. The Belgian's expected that the Germans might attack the fort. They prepared and rehearsed all the possible scenarios for such an attack and were comfortable that they had all the contingencies covered (Mrazek, 1970).

Unfortunately, the Germans use of gliders was not an option that the Belgians had considered. Though gliders were fairly common during this period of time, they were used strictly for recreation and sport. The Germans however saw the military potential of using gliders to achieve surprise. Although the Belgians were prepared for a possible German attack, the use of gliders stunned them into complete inaction and disbelief (Mrazek, 1970). The Belgians had no pre-planned drills or procedures to counter such an event. The use of gliders in this operation clearly was instrumental in the success of the operation. The point is the Belgian's were not surprised or unprepared by the Germans attack on the fort. They were surprise and unprepared for the *method* that the Germans used to attack the fort.

Figure 7 illustrates this concept. The enemy (Box 1) is focused in the direction of the white arrow. This is his perceived realm of possible events. Shaping allows one to approach the enemy in an unexpected manner (the black arrow) out of the opponent's realm of thought. Again this allows the special operators to control more of the environment (BOX 2).

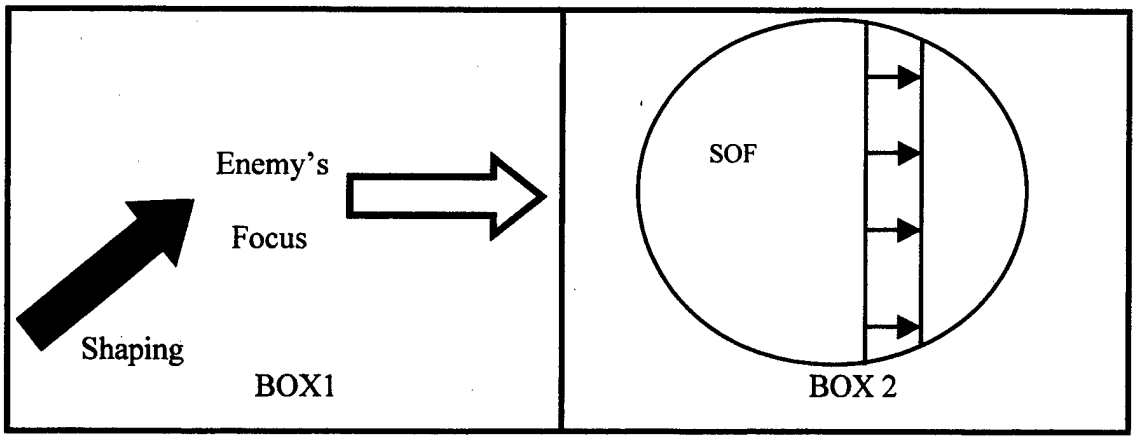

Figure 7. Shaping Strategies

Shaping when properly applied gives the user a tremendous advantage over an adversary. It has the ability to make up for otherwise serious shortfalls in the planning and execution phases of an operation. The case that best illustrates this point is *Operation Oak* — the German special operations rescue of Mussolini. Clearly shaping played an important role in the ultimate success of a flawed mission.

B. GRAN SASSO

> We must find out where the Duce [Benito Mussolini] is being held and free him. That is the mission I have for you Skorzeny, and I have chosen you because I am convinced that you will succeed with this operation (Skorzeny, 1995, p. 230).
>
> —Adolf Hitler July 26, 1943

1. Situation

On 26 July 1943, the King of Italy, Victor Emmanuel, dismissed his Prime Minister, Benito Mussolini and replaced him with General Pietro Badglio. Subsequently, Mussolini was arrested and then disappeared from the public eye. This angered and troubled Hitler greatly. Not only was Mussolini a personal friend of the Fuhrer but also a loyal supporter of the Axis alliance. While publicly the Italians pledged their continued support for the Germans, privately they were working to cut a deal with the Allies.

Hitler reasoned correctly that Mussolini's arrest was a trigger for Italy's defection to the Allies. Hitler hoped that if he could liberate Mussolini he might be able to prevent this from occurring. He therefore tasked his newly formed and trained special operations unit commanded by Otto Skorzeny to find and rescue Mussolini. Hitler gave the rescue operation top priority.

2. Planning

Only five men would actually know all the details of the *Operation Oak.* Of those five men, General Kurt Student, Captain Otto Skorzeny, and his second in command Karl Radl would develop the plan to free Mussolini. These individuals were highly suited for this challenge. Skorzeny and Radl were member of the shadowy and newly formed German commando force known as Jagverbande 502 (Hunting Group). This unit was specially designed and created to conduct sabotage and subversion operations behind enemy lines. Captain Otto Skorzeny commanded the unit and had personally selected and trained all the soldiers in the unit (Skorzeny, 1950; Tanner, 1997).

General Kurt Student was also no stranger to special operations. He was the commander of the elite XI Air Corps. As the commander he had been intimately involved in the highly successful assault on the Belgian fortress complex at Eben Emael and the bloody but successful assault on Crete (Arquilla, 1996). He would draw on the lessons he learned from both these operations to help develop the operation to rescue Mussolini.

The men in this ad-hoc planning cell were perfect foils for each others personalities. Skorzeny and Radl could be characterized as bold, innovative, imaginative thinkers and dreamers (Garret, 1980; McRaven, 1995; Tanner, 1997). They were quite willing to accept a great deal of risk to achieve success and glory at all costs (Skorzeny,

1950). Student on the other hand was a far more careful, practical and cautious man. Prior to executing *Operation Oak*, Student and his technical staff poured over the details of the plan that Skorzeny and Radl had devised. Student was deeply concerned for the lives of his paratroopers that would support the special operators in rescuing Mussolini. He was not about to sacrifice any of his paratroopers on an ill-conceived operation. As Skorzeny recalls, General Student was not intimidated by a sense of urgency. Despite Hitler's orders for success at all costs, Student flatly refused to put up with any "hare brained" schemes for rescuing Mussolini (Skorzeny, 1995). It was only after great debate and numerous changes that the final plan was approved for execution.

There were two key questions that had to be resolved in order to conduct the operation. First, how would the special operators assault the objective without being detected? After considerable detective work and numerous false trails and dead ends, Skorzeny and Radl discovered that Mussolini was being held at the Albergo-Rifugio Hotel on the Gran Sasso Mountain. The hotel itself was located on a plateau in an extremely rugged and isolated spot that was only accessible from a cable car that ran from the valley down below.

Second, once the operators made it to Gran Sasso how would they handle the Italian guards? There were approximately 200 to 250 Italian Carabinieri guarding Mussolini at his hotel prison. Skorzeny's intelligence sources also informed him that the guards had orders to shoot Mussolini if they detected a rescue operation in progress. Thus the Germans had to craft a plan that would allow them maximum time to get to Mussolini before the Italians could react (McRaven, 1995; Garret, 1980).

The first question was how could the special operators approach the hotel without being detected? The only way to quickly approach the hotel by land was by the cable car. Unfortunately, the cable car station was guarded by Italian soldiers both at the terminal in the valley and at the terminal on the mountain. Even if the Germans successfully attacked the cable car station in the valley, the guards at the top would have plenty of time to defend the hotel and or kill Mussolini before the Germans arrived.

The planners considered several options to accomplish this. The first was by conducting a parachute assault on the hotel grounds. This action was quickly ruled out. While a parachute assault would allow the Germans to approach undetected it was considered far too treacherous even for the daring and bold special operators (McRaven, 1995; Skorzeny, 1995). First, the air at 6300 feet was very thin. The rate of decent for the special operators would be too fast. The planners reasoned they would incur too many casualties just on the approach. Second, the winds at this altitude were extremely erratic. The special operators and paratroopers would be scattered across the mountainside. It would take to long for them to mount an organized assault once they were on the ground. Again the Italians would have ample time to defend against the Germans.

The second option was by ground assault. This would entail a raiding force climbing the mountain and then assaulting the hotel. Again this option was quickly ruled out for numerous practical reasons. It would simply be too difficult to move up the mountain undetected and in any condition to assault 200 plus Italians defending the high ground.

The planners determined that gliders would be the best means of approaching and assaulting the hotel. Initially, General Student was vehemently opposed to the use of

gliders, largely for the same reasons that a parachute drop was ruled out: the combination of the thin air, the unpredictable winds, and the small landing area spelled disaster. Student believed the special operators might incur 80 percent casualties just on the approach. Skorzeny argued that Student and his technical experts were being too cautious. First, this type of assault had never been done before so how could they be so sure it would not work? Second, he also pointed out that the new DFS 230 gliders that would be used had an improved braking system that would allow for safer landings. Third, he pointed out that Mussolini could be moved at anytime as he had in the past. This might be their best and only opportunity at freeing him before he was turned over to the Allies. Fourth, Skorzeny argued that the Italians would never expected such an unorthodox approach. It would catch them completely by surprise. Student reluctantly agreed because of the pressures of time. It was the best alternative under the circumstances (McRaven, 1995; Skorzeny, 1995).

The second question that had to be resolved was how to deal with the Italian guards. This problem was made more difficult by the fact that the Italians were still technically allies with the Germans. It was uncertain how they would even react to the Germans sudden presence at Gran Sasso. A bloody assault might only make the situation worse both in the short term (on the objective) and in the long term (the political ramifications).

Skorzeny decided to implement a new tactic he had been working on while studying the results of a failed British commando raid to capture the German General Irwin Rommel (Skorzeny, 1995). He had concluded that the reason the British commandos had failed was that they fired their weapons too early in the assault. As a

result they lost their one key leverage of tactical surprise. He reasoned there is often more to be gained by not firing. "It is bewildering for the enemy who logically shouldn't be there to suddenly appear and come towards him. He doesn't believe his eyes. In this way the moment of surprise is extend, which is necessary for success. Just one shot fire by the attackers is enough to awaken the self-preservation instinct of those being attacked and they will automatically fire back. Nothing is more contagious than a shot" (Skorzeny, 1995, p.156)! Since the Italians were still allies, not shooting would further confuse them to the Germans intentions. Thus Skorzeny made the bold decision to assault the objective without firing any small arms at the Italians defending the objective unless he personally ordered it.

As an after thought Radl came up with the brilliant idea to take along an Italian on the raid. They picked one Ferdinando Soleti. He was a well known General in the Italian Carabinieri. His presence would serve to both confuse and convince the Italians not to resist (McRaven, 1995; Skorzeny, 1995).

3. Execution

> 'Duce, the Fuhrer has given me orders to free you!' He shook my hand and hugged me, with the words 'I knew my friend Adolf Hitler would not leave me in the lurch!' Benito Mussolini was extremely moved and his black eyes glistened. I must confess that this was one of the greatest moments in my life (Skorzeny, 1995, p.263).

Operation Oak was executed on 11 September 1943. Minor delays and mishaps plagued the assault force from the time they took off until they landed at the mountain. Initially the gliders were scheduled to take off at 0600. The raiders were scheduled to land at 0700. There were several important advantages to this time sequence. First, the assault force would have a better chance of landing undetected due to the early hour of the day and the decreased visibility. The guards certainly would not be in a highly alert

state of mind. Second, the winds at this time of the morning would be at their calmest. Unfortunately all the advantages were erased. Skorzeny received word that the gliders had been delayed in their arrival from an airfield in France (Skorzeny, 1995).

Both Skorzeny and Student decided not to push the mission back another day. Time was of the essence since they did not know how long Mussolini would remain at the hotel before he was moved again. Instead they pushed back the mission to 1400 hours that same day. Their assumptions proved to be correct. After the raid, Skorzeny learned that Mussolini was supposed to be handed over later that afternoon to Allied forces (Skorzeny, 1995).

The gliders finally arrived later that morning and the assault force began preparing them for the operation. As luck would have it, just fifteen minutes before the operators were suppose to takeoff, Allied planes began bombing the airfield. The Allied planes managed to crater parts of the runway but fortunately for the Germans none of the raiders or gliders were damaged in the raid. The gliders took off at 1300 hours as scheduled for the one-hour flight to Gran Sasso.

Problems did occur on the takeoff however. Two of the tow planes crashed into bomb craters. Thus two of the glider (out of twelve) never left the airport. Skorzeny confesses in his memoirs that he was never aware of this fact. However, it is doubtful given the importance placed on the mission, that he would have scrubbed the operation (Skorzeny, 1995).

More problems occurred during the short flight to Gran Sasso. With only a few minutes before the scheduled release time, Skorzeny learned from his pilot that the lead plane and glider that were suppose to guide the entire force onto the objective was

nowhere in sight. This not only meant that another plane would now have to take the lead, but also that that assault force would not have the planned support when they landed or when they assaulted the hotel. Skorzeny made the quick decision to take the lead. He reasoned that he would now have to land first in order to accomplish the mission since he could achieve better speed and surprise that way (Skorzeny, 1995).

Skorzeny instructed his pilot to take the lead and informed the rest of the gliders of the change in plans. Unfortunately, Skorzeny had not planned or anticipated leading the gliders into the target. He quickly discovered that he was unable to see out his window to orient himself to his new task. He had to cut a hole in the thin canvas skin of the glider so he could orient himself to the terrain below.

As the planes made their approach to the objective more problems occurred. The approach was much steeper and rockier than the planners had anticipated. It was not the small gentle sloped meadow that appeared to be in the photos they had taken. Instead it was a small boulder strewn field. General Student had specifically instructed the pilots to abort the mission if it was determined that the landing area was unsuitable (McRaven, 1995; Skorzeny, 1995). Under no circumstances were the gliders to make a controlled crash landing. Clearly Skorzeny ignored this order. He shouted for his glider pilot to release the tow cable and land as close to the hotel as possible.

After a very harrowing descent Skorzeny's glider skidded to a halt just 15 meters from the hotel. Immediately the assault force piled out of the wreckage and raced for the hotel. By all accounts the Italian guards were completely astonished when Skorzeny and his team quickly disembarked out of the glider and ran by surprised Italian sentries without firing a shot. As Skorzeny recalls, "At the corner of the hotel building, close to a

slight bank, stood the first gendarme. Obviously stupefied, he did not even stir; no doubt he was still wondering how we could possibly have fallen out of the very skies " (Skorzeny, 1950, p.96).

The operators forced their way into the nearest door available. Unfortunately it was a small room that had no other entrances to the hotel. It was being used as a communications center. The special operators departed the room and search for another entrance to the hotel but not before destroying the radio gear in the room. Again fortune smiled on the Germans. They later learned the radio operator was in the process of sending out a message to higher command that strange aircraft were landing at the hotel (Skorzeny, 1995).

The assault team ran around the backside of the hotel desperately trying to find an entrance into the hotel. They finally came to a terrace that overlooked the hotel grounds. Hoisting themselves up and over the terrace's twelve-foot ledge the assault team found themselves at the main entrance of the hotel. It was at this moment that Skorzeny spotted who he believed to be Mussolini in a second story window.

Unfortunately, the Italians finally were starting to come to life. Guards were beginning to set up machine guns positions near the main door when the assault team began to enter. Still no shots had been fired. As Skorzeny attempted to get to Mussolini, Italian guards blocked his path on the staircase. A bloody altercation might have ensued but General Soleti stepped forward as planned and identified himself to the Italian Officer in charge. The Italians though clearly confused immediately lowered their weapons (Garret, 1980; McRaven, 1995; Skozeny, 1995).

Bulling his way past the very bewildered Italian guards, Skorzeny raced up the stairs and into a room where he found Mussolini with two Italian guards and one man in civilian cloths. Just then two more special operators entered through the opened window. They had managed to climb up the railing to get inside the room where Mussolini was being held. Mussolini now was safely for the moment in the special operator's hands. The entire operation up until this point had taken only about four minutes, all without firing a single shot.

While they did have control of Mussolini, the special operators still did not have control of the situation. A few shots rang out in the distance to punctuate this. Skorzeny realized that the situation could deteriorate rapidly if he did not act quickly. Although taken by surprise the Italians still outnumbered the Germans and the planned reinforcements still had not arrived to the top of the mountain via the cable car. The carabinieri had to be disarmed quickly.

Skorzeny demanded to speak to the officer in charge. Within a few moments an Italian Colonel, Giuseppe Gueli stepped forward and identified himself as commander of the guard force. Skorzeny forcefully demanded that Gueli order his guards to surrender or further bloodshed would result. Skorzeny boldly gave the colonel one minute to think it over. The colonel reluctantly complied. A bed sheet was hung out the window to signal Lieutenant von Berlepsch (commander of the paratroopers) with instructions. Berlepsch moved his paratroopers from their positions to surround the hotel and began disarming the stunned Italian guards. By this time the reinforcements had made it to the mountain giving the Germans numerical superiority over the Italians (McRaven, 1995; Skorzeny, 1995).

The task now became getting Mussolini off the mountain. The special operators had devised three options for accomplishing this. Option A (the option of choice) could not be used because the operators could not get radio contact with Rome to request the planes. Option B (the second choice) also was ruled out when the operators learned that the Storch that landed in the valley had damaged its landing gear. Thus by default the special operators decided on Option C.

After the Germans and Italians cleared a hasty runway, Captain Gerlach successfully landed his Fieseler Storch and prepared to escort Mussolini off the mountain. The exfiltration was almost as dangerous as the entire operation. The plane was only designed to carry two people but Skorzeny insisted on accompany Mussolini back to the airfield. Skorzeny's considerable extra weight combined with the thin air and rough land strip made it a very difficult takeoff even for a skilled pilot as Captain Gerlach. After a very harrowing flight, the plane landed safely at the Pratica di Mare Airport. From here Mussolini was immediately flown to Vienna to meet with his friend and benefactor Adolf Hitler. The mission was complete.

C. ANALYSIS

> If the mission is a failure, Skorzeny, I will find myself obliged to repudiate you in public and state that you acted on your own initiative (McRaven, 1995, p.176).
>
> — Adolf Hitler

1. Was Operation Oak a Success?

Strategically *Operation Oak* was moderately successful. While Mussolini's rescue did not succeed in returning Italy to the Axis has Hitler had hoped; *Operation Oak* did accomplish several things. First, rescuing Mussolini helped pro-German partisans set up a resistance movement in Northern Italy. These partisans were able to hold off Allied

advances in the region for over two years (Arquilla, 1996). Second, the operation was a great propaganda victory for the German high command. The Germans were losing ground in Russia and in Italy (the Allies had successfully invaded Europe through Sicily). Skorzeny's bold raid was used to bolster the morale of the weary German forces and civilian population with a stunning victory. It sent a powerful psychological message to the Allies that the Germans were down but not out. The raid also publicly demonstrated Germany's resolve to stick by their friends and supporters in trouble (McRaven, 1995).

Tactically, *Operation Oak* was highly successful by all accounts. First, the special operators accomplished the mission as planned. In total the mission lasted exactly 12 minutes. That was the time it took Skorzeny and eight of his men to charged the hotel and rescue Mussolini. The operation was also accomplished with minimal loss of life. On the approach phase of the operation ten commandos were killed or wounded when their glider crashed into the side of the Gran Sasso Mountain. None of the approximately 250 Italian defenders lost their lives in the operation (McRaven, 1995; Skorzeny, 1950).

2. Was Operation Oak a Tough Test for the Theory?

While the operation appeared straightforward from the execution it was not. In reality the potential for disaster was high for the special operators and yet they succeeded. For these reasons *Operation Oak* is an excellent case to test the control theory. Clearly the planners had to overcome numerous difficulties and uncertainties in order to accomplish their mission.

First, the operation was difficult because of the sheer geographical location of the objective. The Albergo-Rifugio Hotel served as an excellent prison. It was located on the Gran Sasso Mountain at an elevation of 6300 feet. There were no roads or footpaths that

led up to the hotel. The only practical way to approach the objective was from a cable car that ran from the Aquila Valley below to up to the hotel. Guards posted at the hotel had a clear unobstructed view of the cable car station below as well as radio communication (McRaven, 1995; Skorzeny, 1950).

Second, there was very little available information on the hotel or the grounds itself. Skorzeny and Radl were able to conduct only one personal reconnaissance of the objective from an airplane over-flight. Unfortunately the He 111's automatic camera system malfunctioned. Skorezeny was forced to improvise with a hand held camera. He literally had to cut a hole in the canvas of the plane to take the crude photos of the objective. As a result the photos did not provide the level of detail or scale needed for such an important operation. Thus the special operators had to rely mainly on tourist's maps and the memory of German tourists who had visited the hotel on holiday (Skorzeny, 1950).

Third, there was much uncertainty about the forces guarding Mussolini. The planners could only estimate how many guards there were on the objective (200-250). They did not know for sure how well they were armed or trained. Most importantly they did not know how loyal the Italians were to their mission of guarding Mussolini. At the time many Italians were divided on their loyalty to Mussolini.

Finally, the special operators were working under the pressure of time. Mussolini had been moved from place to place since his arrest. It was unknown how long he would remain at the hotel before the Italians moved him again. The special operators had spent considerable time and effort just tracking down where Mussolini was. Thus once the

special operators were reasonably sure that Mussolini was being held on Gran Sasso, they believed they had to act quickly.

3. Conclusion

Operation Oak was obviously not a perfectly executed mission by any of the numerous accounts of the operation (McRaven, 1995; Garret, 1980; Skorzeny, 1950; Tanner, 1997). In fact the operators, by their own admission, made critical mistakes that arguably could have caused the mission to fail (Skorzeny, 1950). First, Skorzeny had very limited intelligence concerning the capabilities and disposition of the Italians guarding Mussolini. Even though the Italians were still technically allies, he had no guarantee they would react as lethargically and apathetically as they did. Had the Italians reacted more forcefully and aggressively to the sudden appearance of the operators it could have been a more difficult and bloody encounter for the Germans.

Second, the planners had very sketchy information on the terrain outside the hotel (Garret, 1980; McRaven, 1995; Skorzeny, 1995). It was not evident from the crude photographs that the small pasture on the plateau was suitable for landing one glider let alone twelve. General Student an experience pilot himself recognized the risks of such a landing and ordered the pilots to abort if the landing area was unsuitable. Skorzeny was aware of this and by all accounts including his own, chose to ignore Student's order not to crash-land the gliders. He ignored the warning of General Student and his team of planners that they might lose 80 percent of the glider just on the landing alone because of the thin air. Skorzeny chided them for being overly careful. "There are some things you can't work out with a slide rule" (McRaven, 1995, p. 181).

Clearly the pressures of time, and the pressure that Hitler had place on the planners to succeed were big factors that led to some of the more serious planning shortfalls. The Germans realized that this might be their only and best opportunity at rescuing Mussolini before he was handed over to the Allies for safekeeping (Skorzeny, 1995). Because of these time pressures they did not conduct detailed rehearsals of any kind other than a "chalkboard" review of the mission with all the operators and pilots. Had they taken the time to actually rehearse even the highlights of the operation, they might have been able to flush out or alleviate many of the errors that occurred during the approach and assault phases of the operation. Again, despite these glaring errors the operation was a success. Why?

There are several important lessons to be learned from *Operation Oak.* First and most importantly, the shaping strategies the planners applied were the fundamental reasons why the Germans succeeded at all. The Italians had focused their defenses on the cable car terminals both in the valley and on the hotel grounds. They never considered such an unorthodox approach and were caught completely off guard. The glider assault on the hotel was the impossible option that the Italians had not accounted for in the defense of their position on the mountain. As General Soleti colorfully observed when briefed about the plan to free Mussolini

> I hope that you're saying that in jest! The Duce is being held prisoner at an elevation of 2,000 meters, in the high mountains! You really intend to land there? That is impossible, my friend: that would be a really idiotic operation, plain suicide! A proper massacre (Skorzeny, 1995 p. 263)!

By all accounts the Italians were completely and utterly surprise by the glider assault. As a result the Italians were neither physically nor mentally prepared to deal

with an assault from the sky. The glider option gave the special operators time to get to Mussolini before the guards realized what was going on.

Shaping also enabled the Germans to change the rules of the game to suit their advantage. It completely bewildered the Italians when the Germans did not fire a shot in anger during the entire assault. Thus the Germans were able to effectively control the operational environment from the time they landed to the time reinforcements arrived from the cable car down below.

Second, one cannot over emphasize the skill and motivation of the individual operators that conducted the mission. It was a bold mission that required a tremendous amount of discipline as well as personal courage on the part of the operators. The operators were superbly trained and ably led. It is important to highlight that Skorzeny had excellent glider pilots at his disposal — some of the best in the world. They were the true unsung heroes of this operation. With little lead time and no preparation or rehearsals these pilots safely delivered the special operators onto a small very rocky landing strip in high winds.

IV. HEDGING

> Strange as it may seem, planners approach special operations and "strategic" nuclear war in much the same way, for many of the same reasons. The risks are extraordinary at both ends of the conflict spectrum. Outside help will be unavailable should operations go badly, and meticulously detailed planning before the event provides flexibility (Gray, 1996, p.147).

A. DEFINITION

The final method of reducing uncertainty is through hedging (Courtney et al., 1997; Dewar et al., 1993; Schwartz, 1991). Hedging strategies like shaping strategies reduces uncertainty by making the problem of unpredictability irrelevant. The planners accomplished this by *recognizing* what they do not know (uncertainty) and then accounting for it. There is nothing mystical or special about hedging. It is simply a highly methodical approach that entails visualizing and preparing for likely events that could occur. As a result of accounting for uncertainty the operators are better prepared to control events on the ground.

Thus hedging is planning for alternate but possible/foreseeable futures. It is like an insurance policy against likely failures or problems. For example, during the planning of *Operation Thunderball* the Israelis were very concerned with refueling the C130's once they reach Uganda. They realized the operation was not over until everyone was safely back in Israel. The Israelis had to resolve how to *insure* the rescue force could take off again once they landed.

This posed a significant dilemma. While the Israelis could certainly reach Uganda with C-130s, getting back would be a problem. They would not have enough fuel to make it back to Israel given the extreme distance to the objective. There were three options available to the planners. First, they could refuel in the air during the return

flight. This however was an extremely dangerous as well as time consuming procedure. This option was ruled out. It would slow the operation down and make the planes extremely vulnerable in the air. Second, they could refuel at Entebbe once they landed. Like most airports, Entebbe was equipped with a fuel station in the vicinity of the runway. This was also dangerous as well as time consuming. What if a firefight broke out in the immediate vicinity of where the planes were refueling on the ground? This event could spell disaster. The third and best option was to refuel in a friendly country that was close to Uganda. Once the raid was complete the Israelis could simply land at another airport. The question was where to land? Kenya was the only country in Africa that maintained good relations with Israel. The Israelis also had many operatives there, and it was quite possible that an advance party could secure a place for the rescue force to temporarily land before returning to Israel (Raviv and Melman, 1990; Stevenson and Dan, 1976). Still there was no guarantee that the rescue force would be allowed to land in Kenya.

Thus to insure a reasonable chance of success the Israelis opted for a hedging strategy that covered the two best options. The decision was made to prepare to refuel at both Entebbe and Kenya. An advance team was sent to Kenya ahead of time to quietly secure and prepare a location to land and refuel the C-130s. The Kenyan Government would not be informed until the operators were on the ground so as not to compromise the mission. The Israeli advanced team in Kenya would notify the operators at Entebbe if they could land in Kenya or not as soon possible through a secure communications link. If not the Israelis were fully prepared to refuel the planes in Entebbe. A team of Air

Force fuel handlers would also accompany the raiding party and prepare to fuel the planes at Entebbe if necessary (Betser and Rosenberg, 1996).

Additional precautions also were taken to insure that the planes were protected on the ground and could safely takeoff once the raid was completed. First, a team was assigned to place battery powered lights on the runway in case the control tower shut the lights off. Second, another team was assigned to destroy the Ugandan MIGs on the ground to prevent a retaliatory strike in the air. Third, an element was assigned to provide near and far-side security of the runway from enemy ground fire and reinforcements. Fourth, they had also built in redundancy in the number of planes used for the operation. If necessary they could get both the hostages and the rescuers out with two planes. Finally, once in international airspace a squadron of Israeli fighter jets would escort/protect the planes on the return trip back to Israel (Betser and Rosenberg, 1996; Herzog, 1996; Stevenson and Dan, 1976).

If hedging is done properly the operator is afforded greater flexibility to develop the situation on the ground. First, it allows the operator the ability to improvise in the face of adversity. Second, it provides opportunities that might not otherwise be available. Third, hedging provides the operators with a wider margin for error.

For example during *Operation Oak*, the German planners had to resolve how to get Mussolini off Gran Sasso. The planners were not certain how the Italians would react to the rescue since they were still allies with the Germans, or if the elements from Student's Paratroopers Division would be successful in securing area around the objective. It was too dynamic a situation to predict. It all depended on what happened directly after the raid. To account for this uncertainty the planners developed a simple

but effective hedging strategy. They planned and prepared for three possible events. The commander on site would make the final decision for ex-filtration based on the current situation (Skorzeny, 1995). The first and best option was to fly Mussolini out of the Aquila di Abruzzi Airport located a short distance from the base of the Gran Sasso. A battalion of Student's paratroopers division commanded by Major Harald Mors would secure the airfield just prior to the raid. Once secure, three Heinkel 111s would land. One of the Heinkels would carry Mussolini and Skorzeny while the other two planes would serve as escorts. However if the Germans were not able to secure the airfield, they would resort to Option B. German paratroopers would first secure the lower cable car station while the raid was being executed. The operators on Gran Sasso would escort Mussolini down the mountain via the cable car. They would fly him out with a small plane that would land in a meadow located near the lower cable car station. Again if this proved to be too difficult the operators would switch to Option C. Option C involved flying Mussolini directly from the hotel on Gran Sasso with a small plane that would land on the plateau after the raid (Skorzeny, 1995).

During the actual mission the special operators ended up using Option C. Option A (the option of choice) could not be used because the operators could not get radio contact with the paratroopers at the Aquila di Abruzzi airfield to confirm that it had been secured. Option B (the second choice) was also ruled out when the operators learned that the airplane that was positioned in the valley below had damaged its undercarriage while landing in the field. Thus by default the special operators decided on Option C. After the Germans and Italians cleared a hasty runway, Captain Gerlach (General Student's

personal pilot) successfully landed his Fieseler Storch and flew Mussolini off the mountain to safety (McRaven, 1995).

Hedging is designed to "cover all ones bets" by developing detailed contingency plans that are based on likely or possible scenarios. Figure 8 illustrates this concept. Instead of preparing for one likely outcome, operators prepare for many possible outcomes (BOX1). However, it is more than simply developing several scenarios. Planners make a conscious effort to avoid the inevitable problems of groupthink and over confidence. They critically and deliberately challenge their assumptions. They consciously and methodically think through where or how the plan might fail and then take the necessary steps to prevent it from occurring (Russo and Schoemaker, 1989). Hedging strategies succeed in increasing the ability of the special operators to control events (BOX 2).

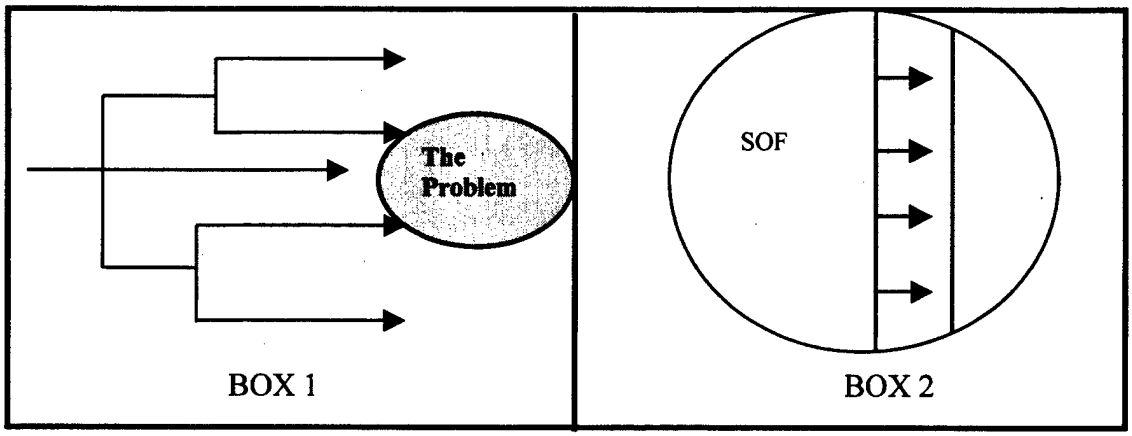

Figure 8. Hedging Strategies

The bottom line is that hedging is a continual cycle that involves developing, rehearsing, and revising plans to account for and mitigate events on the ground that the operator might face. The rest of the chapter will illustrate the concept of hedging as it

applies to an actual case study. No case better illustrates this than *Operation Kingpin* — the attempt to rescue U.S. POW's in North Vietnam.

B. SON TAY

> You are to let nothing, nothing interfere with the operation. Our mission is to rescue prisoners, not to take prisoners (Schemmer, 1976, p.192).
> — Colonel Bull Simons

1. Situation

In 1970 the U.S. had over 500 U.S. service members in POW camps in North Vietnam. Daily intelligence reports documented the horrible conditions that the men were subjected to, including torture, isolation, lack of medical care and adequate food. Reports also indicated that POWs were steadily dying in captivity. It was becoming a very emotional issue to the friends and families of the men held in captivity. The U.S. government was under tremendous pressure to resolve the situation (Manor, 1998; Schemmer, 1976; Vandenbrouke, 1993).

A break finally came in the spring of 1969. Intelligence reports indicated that there was a previously unheard of POW camp in the vicinity of SonTay, North Vietnam. The POWs at the camp had been cleverly alerting the U.S. of their presence through coded messages. The POWs had surreptitiously arrange their drying laundry into patterns that they hoped would be picked up by U.S. surveillance assets. U.S. analysts determined that the POWs were requesting a rescue. After months of deliberation by key officials in Pentagon and the White House, it was determined that the military should begin exploring the feasibility of conducting a rescue operation for the POWs at Son Tay. Planning *Operation Kingpin* began in earnest on 8 August 1970 (Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

2. Planning

> As much effort went into planning and training for emergencies and unforeseen circumstances as was expended in the planning concept (Vandenbrouke, 1993, p.60).
>
> — Brigadier General LeRoy J. Manor

The NCA gave *Operation Kingpin* the highest priority. The Secretary of Defense, Mr. Melvin Laird personally authorized the formation and training of the task force. The Chairman of the Joint Chief of Staff (CJCS), Admiral Thomas Moorer handpicked Brigadier General LeRoy J. Manor (USAF) as the Joint Task Force (JTF) Commander for *Operation Kingpin* and Army Special Forces Colonel Arthur "Bull" Simons as his Deputy Director. Manor and Simons were highly respected in their communities. Both were meticulous planners and experienced special operators. Most importantly they both had considerable personal experience in planning and conducting special operations in Vietnam (Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

The planning environment for *Operation Kingpin* was very unique and highly decentralized by U.S. standards for several reasons. First, Manor and Simons were given complete freedom to plan and train for the operation with virtually no "outside" interference. As Manor recalls, "This was the only situation in thirty-six years in the military where I had complete authority to plan and execute a mission with a blank check" (Vandenbrouke, 1993, p.57).

While the Studies and Observation Group (SOG) in Vietnam could have carried out such a mission, it was determined for various security reasons that an ad-hoc organization would be the best way to carry out the operation (Walker, 1994). The unit that conducted Operation Kingpin was created and trained almost completely from

scratch over a period of six months (Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

Second, General Manor and Colonel Simons were allowed to handpick all personnel that were to plan and conduct the operation. Manor recalls that he and Simon's first priority was to, "assemble a small group of the most dedicated and innovative planners available" (Manor, 1998, p. 2). To their credit Moore and Simons gathered an extremely talented and diverse group of operators to plan and conduct the mission. Manor and Simons selected nearly 26 planners to help develop Operation Kingpin over a period of three months. All four services, including the CIA, were involved in planning the operation (Manor, 1998; Schemmer, 1976; Vandenbrouke, 1993).

For the actual operation Manor would select and train the aircrews, and Simons would select and train the ground operators. Simons went to Fort Bragg and put the word out that he was looking for volunteers for an unspecified operation. From a pool of over 500 volunteers Simons initially selected just 100 for training. That number would later be narrowed down to just 56 operators. Manor was just as selective with the pilots. Most of the aviators had well or 4,000 hours of combat flying. Thus the majority of the candidates were highly experienced in combat operations in Vietnam (Garret, 1980; Manor, 1998).

Third, the task force was given all available assets at their disposal. This included unrestricted access to the most sophisticated intelligence resources that the U.S. had available, including the National Security Agency (NSA), the Central Intelligence Agency (CIA), National Reconnaissance Agency (NRA), and the Strategic Air Command (SAC). These intelligence-gathering agencies provided the planners with detailed and

accurate photos and analysis of the target area (Schemmer, 1976; Vandenbrouke, 1993). The planners also had the ability and authorization to task the Strategic Air Command for over-flights of the target with "Buffalo Hunter" Remotely Piloted Vehicles (RPVs) as well as SR71 Blackbird spy planes. Using this information of the target area, the CIA constructed an exacted replica (to scale) of the prison camp and the surrounding area at a cost of 60,00 dollars (Garret, 1980; Buckler, 1997).

Finally, Manor and Simons were allowed to pick their training location. They selected a remote area of Eglin Air Force Base (AFB) in the panhandle of Florida. The exact area was known as Duke Field or Eglin Auxiliary Number 3. It was an ideal location. The terrain and conditions in Florida closely replicated those in Vietnam. Eglin was also a huge sprawling area with lots of military personnel conducting normal unit training. It would be easy to provide operational security. The raider's presence would not attract any unwanted attention. Most importantly, the raiders could easily isolate and train the entire rescue force without any unwanted distractions (Schemmer, 1976; Walker, 1994).

The planning team headed up by Manor and Simons were extremely methodical in reducing the uncertainties surrounding the mission. Quite simply they left nothing to chance. As Manor recalls in an after action review, "Every facet of the operation [was] exercised [totaling] more than 170 times. Every conceivable contingency was provided for and exercised. Each man knew precisely what his task was under each contingency" (McRaven, 1995, p.326).

The first question that the planners had to resolve was how to get to Son Tay undetected? This was no easy task. The North Vietnamese had developed a very

formidable air defense system. Son Tay was literally in the heart of this air defense network. It would require careful deliberate planning to fly into this hornet nest.

To accomplish this feat the planners first developed a highly detailed snapshot of the target area (Son Tay) and the likely/best approaches to the target area. With the help of strategic reconnaissance photos primarily supplied from SR-71 and Buffalo Hunters, a specially formed intelligence cell at the Defense Intelligence Agency (DIA) provided the Son Tay planners with a highly accurate and detailed picture of the operational area. As one of the planner marveled, "they located every gun barrel within 50 miles of the place" (Schemmer, 1976, p. 99). Based on this information the air planners were able to select a route that would significantly mask the raider's presence from ground surveillance radar. Still the planners were not convinced this would be enough. First, the North Vietnamese had a nasty habit of periodically moving their radar and missiles sites. What if they decided to move them just before the raiders launch their assault? Second, despite careful and meticulous route selection, the raiders would still be vulnerable to detection at certain points along the route. They would be physically unable to use terrain to mask their presence.

In the face of unavoidable uncertainty the planners hedged to insure success. First, the air planners developed a clever deception plan to misdirect the Vietnamese radar. Naval aircraft in the Gulf of Tonkin would be used to conduct a large-scale air attack (a total of 59 sorties) on the cities of Haiphong and Hanoi in the east at the exact same time that the raiders were infiltrating from the west through Laos. Instead of dropping bombs the naval aircraft would drop a few flares and returned to the carrier. The large amount of planes flying from the east would light up the Vietnamese radar

systems and cause them to focus their attention in that direction instead of in the west (Manor, 1998; Walker, 1994).

Second, all the pilots for the operation would be carefully chosen for their exceptional flying abilities in actual combat. As noted before, Manor personally handpicked every pilot for the mission. They were all highly skilled and experience pilots. Third, Manor put them through a grueling training schedule that would replicate as best he could the actual flying they would have to do in order to evade enemy radar. One of the air planners, Ben Krajlev recalls the rigorous training schedule for the aircrews: "Aircrew training began with night formation involving dissimilar aircraft. As the crews became comfortable with the phase, low level was introduced as well as objective area tactics, which included helicopter landings and extractions; air-drops by C-130s of flares, firefight simulators and napalm; close air support by the A-1s. During this training aircrews flew over 1054 hours without so much as scraping a wing tip or rotor blade — most of it at night with dissimilar aircraft in low level formation while blacked out — a true reflection of the superb skill of each and every crew" (Manor, 1998, p.3). During this time the pilots developed and practiced numerous scenarios and situations that could arise during the actual conduct of the mission. Manor insured all the pilots were cross-trained in the duties and responsibilities of other pilots. Thus emergencies became a matter of routine procedure. A simple code word would initiate an alternate plan of action should anything go wrong in the air.

Finally, the planners relied heavily on redundancy. For example it was determined that three HH-53 helicopters would be sufficient to conduct the operation — the raiders used five. They would only need one C-130 to guide them through the

mountains — the raiders used two. It would only take two A-1 aircraft for close air support — the raiders used five (Manor, 1998).

The second question that the planners had to resolve was how to get the raiding force in and out of the prison compound quickly. This was no easy task. Intelligence estimates placed roughly 12,000 North Vietnamese troops in the vicinity of Son Tay. The specific ground threat came from five installations within ten kilometers of the prison compound. The closest one was only 500 yards south of the prison. It was not clear what this compound was used for or how many enemy troops were located there. Intelligence reports indicated there were approximately 45 guards located directly at the prison. It was determined from this information that if the raiders were on the ground less than 30 minutes they would be able to accomplish their task without having to become decisively engaged with any enemy reaction forces (Schemmer, 1976; Walker, 1994).

The planners again relied on hedging strategies to insure success. First, the planners gained considerable knowledge of the enemy's capabilities, disposition and order of battle from national intelligence assets. Thus the planners were able to obtain a remarkably detailed model of the camp and the surrounding area. As one of the raiders, SGT Terry Buckler recalls, "The CIA had a miniature model of the Son Tay prison. We went in and studied it so we would know what to expect when we hit the ground. It was very accurate. So accurate in fact they had a little bicycle parked in the prison compound" (Buckler, 1997, p.5).

Based on the highly detailed knowledge of the camp's layout it was determined that a smaller helicopter (the HH-3) would be able to crash land inside the compound

during the assault phase of the operation (it would be abandoned and destroyed by the special operators prior to ex-filtration). This would provide the critical time necessary to subdue the guards and rescue the POWs under 30 minute.

Second, as noted before, the ground operators were very carefully selected. Colonel Simons personally handpicked all the ground operators for the mission. The majority of the raiders were experienced with ground combat operations in Vietnam. Third, Simons put the raiders through grueling, realistic training to prepare them for the mission. They would rehearse the ground mission over 170 times often with live ammunition day and night. Twice the raiders conducted complete full mission profiles involving all the aircraft and ground teams. During these full dress rehearsals, independent observers from the Joint Chiefs of Staffs (JCS) observed and critiqued the practice runs (Schemmer, 1976; Walker, 1994). The planners would also inject various scenarios and situations in during the rehearsals. As SGT Buckler recalls, "We started training in the daytime, going through dry runs...Then we began doing night training. There was a flare ship above us that lit up the compound. We used live ammunition the entire time as well. They wanted the training to be as realistic as possible. We also used several old building on the base and had some of our people who were not going on the raid act as prisoners. We would find them and take them out. Again, they included certain situations to add realism to the scenario. For example, when we brought the prisoners out to safety, one would accuse another of collaboration and want to kill him on the spot" (Buckler, 1997, p.4).

Finally, the raiders were well trained for possible mishaps in the execution phase. The raiders were subdivided into three separate teams (Command, Assault, and Support).

They were cross-trained in each of the other teams missions. If a mishap occurred they would use code words to execute a contingency plan. For example, if plan Blue was called it meant the primary assault team was unable to perform their primary mission of rescuing the POWs. The command and support teams would then carry out preplanned and rehearsed responsibilities. There were also plans Red and Green which accounted for losing either the command or support teams. The bottom line was that the ground operators were ready for even the most bizarre scenarios to include how to handle bickering and arguments among the POW's during the rescue. These worst case scenarios made the unexpected almost routine (McRaven, 1995; Schemmer, 1976; Walker, 1994).

3. Execution

> Anybody who gets in our way is going to be dead (Walker, 1994, p. 58).
> — Col. Arthur "Bull" Simons

Operation Kingpin was finally executed on 21 November 1970. The raiders took off from Udorn, Thailand without incident at 2300 hours local. During the flight an unidentified plane flew through the formation of helicopters. One of the helicopters had to conduct evasive maneuvers to avoid a mid-air collision. The raiders had rehearsed for just such an incident. The pilot automatically initiated the code word for a "lost contact". Each of the helicopters and planes separated to pre-planned headings and altitudes for one minute and the returned to the original flight plan. The formation rejoined without further incident. The incident was nothing more than a matter of routine for the pilots. The contingency training and preparation had paid off.

As the helicopters made their final approach onto the Son Tay prison, the C-130s illuminated the target with a series of flares to aid the helicopters in finding their targets (as planned). Unfortunately the lead helicopter became momentarily confused. The

pilot, Major Donohue, mistook the secondary school for the prison. He began his strafing run when he realized his mistake and flared off before firing on the wrong target. He would later credit this to the numerous rehearsals they had conducted on the highly accurate full-scale models of the objective area (Schemmer, 1976; Walker, 1994).

The helicopter carrying Colonel Simons and the rest of the support team (Apple 1) became confused and landed at the secondary school instead of their intended location. Because the pilot had switched to internal communications he did not hear the warning from the lead helicopter (Apple 3) that he was in the wrong location. Simon's support teams disembarked and immediately realized their mistake. Simons calmly called for and got an extraction from Apple 1. Again the contingency plans and rehearsals had paid off. During the mishap LTC Allison, the pilot of Apple 2 immediately called for the raiders to switch to plan Green. This plan called for the command and control team to assume the mission of the support team which was now temporarily out of contact. By all accounts and according to after action reports conducted immediately after the mission the switch to plan Green and then back to the original plan went seamlessly. Again the hedging strategies had paid off. The rest of the operation went according to plan.

After Apple 3 destroyed the two guard towers with the mini-guns, CPT Meadows' assault team conducted their controlled crash landing on the compound. It was very hard landing but fortunately none of the raiders were serious injured with the exception of a broken ankle suffered by Technical Sergeant Leroy Wright. As they piled out of the wreckage, Captain Meadows used his bullhorn to warn the POWs of what was going on. "We're Americans. This is a rescue. We're here to get you out. Keep your heads down. Get on the floor. We'll be in your cells in a minute" (Schemmer, 1976, p.204).

Meadows' assault team immediately conducted a thorough search of the compound, which lasted for approximately ten minutes. During that time the raiders managed to kill approximately 55 Vietnamese guards in and around the compound without a single fatality to the raiders. Unfortunately, it was discovered that that were no prisoners on the compound; it was a "dry hole". Outside the compound LTC Sydnor's team immediately secured both their own and the missing support team's assigned sectors. This included destroying a bridge just moments before enemy reinforcements tried to cross it. Nine minutes into the raid, Simons radioed Syndor to switch back to the basic plan. He would be landing shortly. Thirty seconds later, Simons and his support team were reinserted to their proper location and resumed their assigned duties to included blowing up a bridge just north of the Son Tay compound. Ten minutes into the raid, Simons was aware that Son Tay was a "dryhole". He immediately ordered the raiders to withdraw after Meadows' team conducted one more final sweep of the area to be absolutely sure no POWs were there. The raiders were back in the air after only 26 minutes on the ground. Immediately the orbiting A-1s began strafing what was left of the objective area. All the raiders and support planes made it safely back to their bases inside Thailand with the exception of one F-105. The plane was shot down by an SA-2 while suppressing enemy missile sites. The crew of two safely ejected and were picked up by one of the returning helicopters (Manor, 1998).

C. ANALYSIS

1. Was Operation Kingpin a Success?

The author would argue an emphatic yes. The strategic success of *Operation Kingpin* cannot be denied. First, the raid demonstrated U.S. resolve and commitment.

President Nixon had been under incredible pressure by Congress and the POW/MIA League of Families to "do something". The raid accomplished this goal. The NVA fearful of more such attacks began consolidating all the POWs into one large camp in Hanoi. This action in itself vastly improved the treatment and conditions of the POWs. International organizations such as the Red Cross could now keep better track of the numbers of POWs and their treatment.

Second, the raid was a big moral boost for the POWs and the League of Families when word spread of the attempted rescue. The POWs and the families realized that the U.S. government had not forgotten about them and was willing to go to extreme measure to secure their release (Manor, 1998). Third, the raid demonstrated to the NVA that they were vulnerable to U.S. strikes other than strategic bombing. The U.S. was capable of conducting ground strikes in their own backyard. It caused the North Vietnamese to recall units that had previously been fighting in South Vietnam (Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

Finally, it was no great surprise that the POWs were not at Son Tay. The senior planners had realized from the start that the POWs might not be at the camp. Some intelligence reports indicated that they were there while other reports indicated that the POWs were not there. The senior planners elected to conduct the operation anyway under the chance that the POWs might be at Son Tay (Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

Despite not rescuing the POWs, *Operation Kingpin* was also tactically a well planned and executed operation. First, the raiders conducted the mission with clockwork precision. They were on the ground less than 30 minutes (three minutes ahead of

schedule). Second, they inflicted egregious casualties on the enemy. It is estimated that the raiders killed between 50 to 100 NVA regulars, as well as possibly a few Chinese and Russian advisors in the process (Manor, 1998). Third, the raiders suffered zero casualties. Amazingly, only one raider received a superficial wound to his leg while another fractured his ankle. This was quite remarkable considering the number of raiders and enemy soldiers occupying the same objective. Fourth, the raiders were prepared for and handled all events on the ground. Everything that actually happened on the ground was anticipated and accounted for during the planning and preparation phases of the operation (Manor, 1998, Schemmer, 1976; Vandenbrouke, 1993; Walker, 1994).

2. Was Operation Kingpin a Tough Test for the Theory?

Operation Kingpin was an extremely complex and difficult operation to undertake. No such operation had ever been attempted under these conditions. First, it required tremendous coordination. Aside from the ground operators, the operation involved over 116 aircraft from seven air bases and three aircraft carriers (Manor, 1998). The second problem was the location of the target. The raiders were literally flying into a hornet's nest. Thus there would be little margin for error. The prison camp was only 30 miles from Hanoi — one of the most densely defended air spaces in the world (Vandenbrouke, 1993). It was also in the vicinity of the 12th North Vietnamese Army (NVA) which totaled almost 12,000 seasoned combat troops (Manor, 1998). Finally, there was an NVA training compound that was only four hundred meters south of the prison compound that billeted an undetermined number of enemy soldiers and instructors.

3. Conclusion

The execution of *Operation Kingpin* was not a flawless mission by any means. The raiders made numerous mistakes. The lead helicopter got lost. The assault team initiated the raid early (on the wrong target). The support team landed on the wrong objective. Yet none of these seemingly critical mistakes proved catastrophic to the special operators. Why?

The raiders were able to reduce and mitigate uncertainties on the ground through the methodical application and use of hedging strategies. Although outnumbered more than two to one, for a brief period of time (26 minutes) the raiders controlled the operational environment. The detailed contingency planning gave the raiders flexibility and room for great improvisation especially at the secondary school where the support team although in the wrong place, wrought tremendous casualties on the surprise Vietnamese. In recognizing and accounting for uncertainty they had succeeded in preparing for all the likely scenarios. The planners had correctly identified where the plan would fail and what to do about it if and when it occurred. Thus none of the raider's mistakes interrupt the flow or timing of the mission. The teams adjusted and flexed as a matter of routine. The enemy was forced to react to the raider's moves instead of the other way around.

V. CLOSING THOUGHTS

A. SUMMARY

Special operations are defined by uncertainty. It is a troublesome but inherent fact of life for organizations that must operate in dynamic and often chaotic environments. Success in this difficult and hostile environment requires the SOF planner to recognize and account for uncertainty during the planning process. This thesis has offered a decidedly non-technical solution for planning in the "fog of war" — a strategy of innovative thinking that employs *adaptive learning*, *shaping*, and *hedging* in the face of uncertainty. Used in combination the author has argued that these three planning strategies are powerful tools for helping SOF reduce uncertainty. *Adaptive Learning, shaping and hedging* enables the operator to *control* the operational environment for a brief but critical period of time at the expense of their adversaries. This control serves to reduce risk for the operators on the ground and subsequently increases their chances for successfully accomplishing their mission.

Thus the author submits that there is no substitute for qualitative human analysis and creativity when it comes to the military planning and decision making. Human factors and human resources will continue to play a vital role in this mix. Planning in uncertainty is as much an art as a science. It involves planning for the unaccountable, unthinkable, and the unexpected. It is however a perishable skill that must be developed nurtured and exercised. It should not be lost in the technological shuffle or be allowed to atrophy. This leads to an interesting question for the future? Is the US military trying to tackle the problem of uncertainty with a one-dimensional approach — through technology alone? What are the consequences of such an approach?

B. REDUCING UNCERTAINTY THROUGH TECHNOLOGY

> Improvements in information and systems integration technologies will also significantly impact future military operations by providing decision makers with accurate information in a timely manner, information technology will improve the ability to see, prioritize, assign, and assess information. The fusion of all source intelligence with the fluid integration of sensors, platforms, command organizations and logistics support centers will allow a greater number of operational tasks to accomplished faster (Shalikashvili, 1996 p.13).

Throughout history, military organizations have looked to technology to efficiently solve their problems and reduce uncertainty. The hope is that some new or improved piece of equipment will be the "silver bullet" that will give them the decisive edge in combat. The lure of relying on technology to solve problems is understandable. Technological advances in the last 10 years have dramatically increased the capabilities to collect, process, and disseminate information to soldiers on the battlefield.

The U.S. military is at the forefront of this apparent revolution in military affairs (RMA). Currently and in the foreseeable future, the U.S. military is investing heavily in technologies and information based systems. Force XXI and WarNet are just a few examples of some of the current concepts and programs underway (Edwards, 1997; McCarthy, 1997). The ultimate goal of investing in such systems it seems is to make the battlefield more transparent — to reduce uncertainty through the use of technology. Most experts agree that this emphasis on technology and information systems is the dominant paradigm for how the U.S. military will conduct future conflicts (Arquilla, and Ronfeldt, 1997; Barnaby, 1986; Edwards, 1997; Gray, 1997; McCarthy, 1997; Shalikashvili, 1996; Shelton, 1996). It is precisely because of this trend that the author would like to give pause and reflect on how the application of these technologies (to mitigate uncertainties

and battlefield friction) will affect the human in the loop. Are there unintended consequences of the availability of so much information?

C. IMPLICATIONS

> The emergence and assimilation of new technologies have frequently brought about significant changes in military organization, doctrine, and warfighting strategy. The speed, power, and miniaturization of information processing components have brought greater lethality and precision; increased stand-off distances of command, forces and firing platforms and improved knowledge of the battlespace from intelligence, surveillance and reconnaissance (O'Neill, 1997, p. 98).

There are two major implications that evolve out of Information Age warfare. The first speaks to the problem of information overload. The current RMA is about information dominance. It is about the increased inter-connectivity, access and availability of information. According to this vision, information technologies will allow decision makers and planners to have access to virtually unlimited amounts of information while denying or disrupting the opponent's ability to access information (Arquilla and Ronfeldt, 1997; Barnaby, 1986; McCarthy, 1997). However, the author submits that such unlimited information comes at a price: increased complexity and information overload. This can lead to the very same inherent pathologies discussed in chapter one (see Figures 2 and 3).

If one accepts the current RMA theory, it stands to reason that the more information available (in the name of lifting the fog of battlefield uncertainty) the more choices and decisions leaders will have to make. Planners and decision makers will be deluged with hundreds, thousands, and perhaps even hundreds of thousands of possibly relevant facts to "help" them make timely and wise decisions. Instead of being in an information vacuum planners will be confronted with an information avalanche. For the

planner who must sort through all the "relevant" data that might or might not concern an operation, the analogy is like trying to take a drink of water from a fire hose.

Some analysts believe that future wars will be so complex and dangerous that virtually all decision making will be done by computers (Barnaby, 1986). The author disagrees with this notion and believes that humans will not be left out of the planning and decision making loop any time soon. This begs two questions. First, is more information necessarily better? Second, does quantity always equate to quality?

The author argues no. The battlefield of the future will be just as confusing, chaotic and unpredictable, as it was 30 years ago. In Vietnam, the U.S. military (among other things) tried to apply a scientific approach to a very complex problem. They tried to utilize America's superior technology, communications and data processing abilities to overwhelm and demoralize a lesser equipped and apparently inferior enemy. This "strategy" boiled down to a war of attrition fought with massive firepower and technology. Unfortunately, this template simply did not work; the U.S. focused on the science instead of the art of war (Cable, 1986).

Martin Van Creveld draws a similar conclusion. He observed with considerable dismay how information technologies designed to make the US Army more efficient were perhaps the single greatest factor that contributed to the inefficiencies and troubles of the U.S. military in Vietnam. Technology that was intended to simplify the war made it exceedingly more confusing and complex (Van Creveld, 1985).

> Complexity and specialization, organizational instability and centralization- these factors, to draw the threads of the argument together, caused an inordinate increase in the amount of information needed to make any given decision at any given level, or, which comes to the same thing to enable any unit within the Services to carry out any given mission...To put it briefly, the communications establishment made possible by the revolution in technology, and necessary in order to deal with the consequences of specialization and complexity, had itself turned into a major source of both specialization and complexity. The cure was part of the disease (Van Creveld, 1985 pp.237-239).

The second implication deals with how Information Age technologies affect organization design. If the current Information Age is indeed transforming the nature of war, it will most certainty effect the nature of the organization that must fight these wars (Arquilla and Ronfeldt, 1997). The author believes that those who operate in this new war paradigm will be forced to adopt new organizational structures in order to efficiently and effectively handle the increased flow of information.

Even with all current excitement over the combat potential of Force XXI, the U.S. military is currently a very traditional, centralized and hierarchical organization. The author argues that senior military commanders weaned in a centralized hierarchy environment will have a difficult time loosening up on the reigns of power, especially when it is now only a finger click away. Again, Vietnam serves as a cautionary tale for this point; it illustrates the unintended consequences information technologies can have on command and control systems (Van Creveld, 1985). The bottom line is that it is very hard for leaders to resist the temptation to over control subordinates (given increased monitoring ability) in situations that should require decentralized leadership, authority and decision making.

> Under the conditions peculiar to the war in Vietnam, major units seldom had more than one of their subordinate outfits engage the enemy at any one time. Ordinarily this should have permitted each commander to control a larger number of subordinates, thus leading to decentralization and a flattening out of the hierarchical structure; instead, it led to a very different phenomena. A hapless company commander engaged in a firefight in the ground was subjected to direct observation by the battalion commander circling above, who was in turn supervised by the brigade commander circling a thousand or so feet higher up, who in his turn was monitored by the division commander in the next highest chopper, who might even be so unlucky as to have his own performance watched by the Field Force (corps) commander. With each of these commanders asking the men on the ground to tune in to his frequency and explain the situation, a heavy demand for information was generated that could and did interfere with the troops' ability to operate effectively...That the telescopes in question were frequently so powerful as almost to paralyze the action they were supposed to monitor is in view of the circumstances, scarcely surprising (Van Creveld, 1985, 255-256).

Those who might argue that the US military has learned its lessons from Vietnam should look at what happened 30 years later in Somalia during Operation Restore Hope. In October 1993, Rangers and Delta commandos became involved in a desperate and ferocious firefight with Somali gunmen after a U.S. raid turned sour. Through the use of the latest technology, U.S. Commanders that were thousands of miles away were able to directly observe the events on the ground. Instead of flying in helicopters, the commanders were linked in by live video that allowed them to monitor the battle from half way around the world (Bowden, 1997; DeLong and Tuckey, 1994).

These two vignettes emphasize the need for more than simply overlapping information technologies onto existing systems. The point is that it will require serious organizational redesign. Organizational theory tells us that the greater the uncertainty, the

more decentralized the organization should be in order to efficiently function in a dynamic environments (Galbraith, 1977; Mintzberg, 1979).

D. ORGANIZATIONAL REDESIGN

> Every organization has the capacity to learn, but it is the speed of learning that separates the winners from the losers. For organizations as with humans and other higher life forms, the quicker the ability to learn, the greater the intelligence and the greater the likelihood of thriving in the future (Sherden, 1998, p.251).

Organizations that are best suited for planning in dynamic environments exhibit similar critical behaviors, characteristics and trends that enable them to creatively plan (adaptive learning, shaping, and hedging) during uncertain situations. Their organizations are *learning environments* (Senge, 1990) and their leaders are *multi-framed thinkers* Russo and Schoemaker, 1989). Instead of reacting or being surprised by events, they are prepared.

Learning organizations enable and equip planners with the mental tools necessary to overcome uncertainty These types of organizations provide an internal environment that helps develop multi-framed thinkers. Learning organizations empower and encourage their subordinates to think creatively in dynamic situations. They typically have less formal structures and less rigid rules. This helps foster a superior internal environment for confronting and addressing the problems associated with uncertainty. First, it helps prevent an environment of fear, zero defects and groupthink. Second, it improves cross communication and fosters better information sharing among senior leaders, peers and subordinates. Third, it frees the organization to employ less rigid and formulaic (cookie cutter) solutions to problems (Russo and Schoemaker, 1989). As James March tells us, a common problem with humans is that they do not frame problems

correctly. They are impaired by their limited background and life experiences (March, 1994). They tend to look at a problem from a single frame of reference. Successful organizations develop and encourage decision makers to be multi-frame thinkers. As Edward Russo and Paul Schoemaker observe, "Frames have enormous power. The way people frame a problem greatly influences the solution they will ultimately choose. The frames that people or organizations routinely use for their problems controls how they will react to almost everything they encounter" (Russo and Schoemaker, 1989).

The bottom line is that multi-frame thinkers are able to look at problems in "odd and interesting ways" (Arquilla, 1997). They are innovators and visionaries. Multi-framed thinkers develop the ability to acquire and apply knowledge in nonlinear ways. Because their organization fosters this type of thinking they are unafraid and uninhibited to look a situation from a different angle or perspective. The result is they are better equipped and trained to function in dynamic environments because they are able to correctly anticipate where plans or operations might unravel or go wrong. Thus they are better equipped to recognize, account for and control uncertainty and are ultimately more successful against a determined enemy.

E. CONCLUSION

> Intelligent life forms more quickly and flexibly adapt to changing environments and learn to capitalize on new opportunities and avoid pitfalls. The same is true of intelligent organizations, be they corporations, governments or armed forces (Senge, 1990, p. 249).

The Information Age is quickly changing how the U.S. Military must think and operate in future conflicts. Technology can help to mitigate uncertainty and chance in

war, but it not a panacea. The author argues that one cannot merely superimpose information technologies on the current system and expect it to be effective.

The simple fact is technology is a tool not a strategy. Although technology will be instrumental in any future war or crisis, it is not a substitute for principles of sound strategy, tactics and leadership. If information technology is to be an effective tool for mitigating uncertainty, it must focus on enhancing and simplifying the overall ability of the human combatant to process, decide and act on information. It must blend science with art as prescribed by this thesis.

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